

ISSN:



ST.ANN'S COGNITIVE CHRONICLES

A Multidisciplinary Journal

2024

Volume-1 X Issue -1



Ph: +91 7993707565

Stannsm ltdspjournal8@gmail.com

<https://stannscollegevizag.org/>

PREFACE

In an era where academic inquiry is advancing at an unprecedented pace, St. Ann's Cognitive Chronicles emerges as a distinguished platform for interdisciplinary scholarship. As we launch the inaugural issue of this innovative journal, we celebrate the synergy of diverse academic fields and the intellectual curiosity that propels our quest for knowledge.

Our aim is to create a dynamic space where distinguished researchers, emerging scholars, and passionate students can come together to share ground-breaking ideas, novel research, and insightful perspectives. St. Ann's Cognitive Chronicles aspires to be more than a mere collection of academic articles; it is envisioned as a lively forum for the exchange of transformative knowledge and pioneering methodologies.

The first issue of our journal features a diverse array of contributions that reflect our commitment to intellectual exploration across various disciplines. From ground-breaking studies and thought-provoking case analyses to creative endeavours that challenge traditional frameworks, each piece represents a valuable thread in the intricate fabric of human understanding.

Our editorial goal extends beyond merely presenting research; we seek to foster dialogue and collaboration that bridge disciplinary divides. By creating an environment where diverse viewpoints intersect and innovative ideas are not only accepted but celebrated, Stann's Cognitive Chronicles aims to enhance academic discourse and inspire future research.

As we begin this exciting journey, we encourage our readers to engage with the content thoughtfully, question existing assumptions, and participate actively in the ongoing dialogue that will shape the future of scholarship. Together, let us explore new realms of thought and drive the evolution of knowledge with enthusiasm and originality.

Welcome to St. Ann's Cognitive Chronicles. We eagerly anticipate the discoveries and advancements that will emerge from this exceptional platform.

— The Editorial Team

Editorial Board Members

	Editor in Chief	<p>Dr. Sr. Jonnada Prema Kumari</p> <p>Designation : Principal, St. Ann's Degree College for Women</p> <p>Qualification : M.Sc M.Phil, Ph.D</p> <p>Department : Botany</p> <p>E-mail Id : premajsas@gmail.com</p> <p>Phone No. : 9441838484</p>
	Deputy Editor in Chief	<p>Prof. Dr. Jonnada Ananda Vara Prasada Rao</p> <p>Designation : HOD, Biotechnology Molecular Biology & Immunology Laboratory D.D.U. Gorakhpur University Gorakhpur-273009 Uttar Pradesh India</p> <p>Qualification : M.Sc, Ph.D.</p> <p>Department : Biotechnology</p> <p>E-mail Id : drjonnada_avpr@rediffmail.com</p> <p>Phone No. : 9450420142</p>
	Executive Editor	<p>Roja. Akkaraboyina</p> <p>Designation : HOD, English</p> <p>Qualification : MA, B.Ed (Ph.D)</p> <p>Department : English</p> <p>E-mail Id : rojakrishna8@yahoo.in</p> <p>Phone No. : 8341145429</p>
	Editorial Secretaries	<p>Dr. Adi Seshu Gidugu.</p> <p>Designation : HOD, Botany</p> <p>Qualification : M.sc, M.phil., Ph.D</p> <p>Department : Botany</p> <p>E-mail Id : seshuhnaranadh@gmail.com</p> <p>Phone No. : 9440137153</p>
	Editorial Secretaries	<p>G. Lalitha Reddy</p> <p>Designation : Vice Principal</p> <p>Qualification : M.A., M.Phil. & NET</p> <p>Department : History</p> <p>E-mail Id : redskylalitha380@gmail.com</p> <p>Phone No. 9182450513</p>
	Associate Editor	<p>Dr. Ch. Prasanthi</p> <p>Designation : HOD Microbiology</p> <p>Qualification : MSc, Ph.D</p> <p>Department : Microbiology</p> <p>E-mail Id : prashanthigudala20@gmail.com</p> <p>Phone No. : 8096530362</p>
	Asst. Editor	<p>Mrs. Jayasri Puli</p> <p>Designation : Academic Administrator</p> <p>Qualification : MBA (Hr), M.Com, (Ph.D)</p> <p>Department : Commerce & Management</p> <p>E-mail Id : jayasrirao@gmail.com</p> <p>Phone No. : 9951679952</p>

AUTHOR INDEX

Sl.No.	Name	Title of the Paper	Plagiarism Report Link
1.	Sr. Jonnada Prema Kumari	The Antibacterial Activity Of Some Selected Medicinal Plants Against Upper Respiratory Tract Infections.	https://stannscollegevizag.org/wp-content/uploads/2024/09/PREMA-SISTER-plag.pdf
2.	Adishesu. Gidugu	Survey on Medicinal Plants at Sri Seetharaman Chandra Swamy Temple, Jagadamba Junction, Visakhapatnam, India.	https://stannscollegevizag.org/wp-content/uploads/2024/05/similarity-Dr._Adishesu_d0800841ce97dcfd.pdf
3	E.P.S. Bhagya Lakshmi	Women Political Leadership- Issues & Suggestions	https://stannscollegevizag.org/wp-content/uploads/2024/04/Bhagyalakshmi-Madam.pdf
4	Y. Anasuya Devi	The Role Of Shgs In Achieving Women Empowerment	https://stannscollegevizag.org/wp-content/uploads/2024/04/Anasuya-Madam-1.pdf
5	K. Uma Maheswari	Ethics in Marketing	https://stannscollegevizag.org/wp-content/uploads/2024/04/uma-madam-1-1.pdf
6	P. Lavanya	Stress Relief for Women's Health	https://stannscollegevizag.org/wp-content/uploads/2024/04/lavanya-madam-plagiarism-report-1.pdf
7	Jayasri. Puli	The Role of Human capital to attain Sustainable Economic Growth	https://stannscollegevizag.org/wp-content/uploads/2024/04/Role-of-Human-Capital.pdf
8	Prasanthi. Cheekurumelli	Studies on bird diversity at Campus of St. Ann's college for women, Malkapuram, Visakhapatnam, A.P, India.	https://stannscollegevizag.org/wp-content/uploads/2024/04/Dr.-Prashanti-Madam-2.pdf
9	Roja. Akkaraboyina	Speaking English as English	https://stannscollegevizag.org/wp-content/uploads/2024/09/Mrs-Roja.pdf
10	B. Sudha Rani,	Invitro activity of certain drugs in combination with plant extracts against <i>Staphylococcus aureus</i> , <i>Klebsiella pneumonia</i> and <i>Epidermophyton floccosum</i>	https://stannscollegevizag.org/wp-content/uploads/2024/04/sudha.pdf

The Antibacterial Activity Of Some Selected Medicinal Plants Against Upper Respiratory Tract Infections

Sr. Jonnada Prema Kumari,

Principal

St. Ann's College for Women, Malkapuram, Visakhapatnam.

E-mail : premajsas@gmail.com

Abstract:

Upper respiratory tract infections (URTIs) pose significant health challenges globally, often caused by bacterial pathogens. This study investigated the antibacterial activity of three medicinal plants—*Ocimum sanctum*, *Adhatodavasica*, and *Solanum trilobatum*—traditionally used to treat URTIs in village communities. The plant materials were processed into aqueous extracts using a Soxhlet apparatus. Antibacterial activity was assessed against clinical isolates of *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, and *Salmonella typhi*, common URTI pathogens, putting to use the agar well diffusion method. The least inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) were determined for each extract. The combined effect of the extracts was evaluated using the checkerboard method. Furthermore, the efficacy of the extracts against patient sputum samples was assessed. The results demonstrated significant antibacterial activity for all plant extracts against the tested pathogens. Importantly, the combined action of the extracts exhibited a synergistic effect, enhancing their antibacterial efficacy compared to individual extracts. These findings bring to notice that these medicinal plants can be promising candidates for the making of alternative or adjunct therapies for URTIs. However, further research is warranted to explain their mechanisms of action and to optimize their therapeutic potential.

Keywords : antibacterial, medicinal plants, sputum, diffusion method, check board method, Mechanisms...

INTRODUCTION

Nature always resembles the golden treasure in which the wealth of the world is hidden. And since ages, man finds all possible remedies for all his ailments from this treasure. Hence plants are necessary to man in life. The information on drugs has been piling up for thousands of years. Herbal medicine in the past is as aged as mankind. Most of the paperwork from classical times discloses that plants were medicinally used in China, India, Egypt, and Greece even before the start of the Christian era. India is home to 45,000 plant varieties and 550 tribal communities associated with 160 linguistic groups and inhabited by various geographic and climatic zones with different plant breeds and diverse cultures, a rich conservative knowledge system, wisdom, and an ethnobotanical store.

Various medicinal practices in India include, Ayurveda, Siddha, Unani, and Amchi, and regional health practices, use a huge amount of plants for the cure of human disease, throughout the history of mankind and even today. Many of these health-giving vegetation have been recognized and their uses are well preserved in the documentation and explained by various authors (Nadkarni, 1976; Dastur, 1985; Saradamma, 1990; Jain, 1991; Kirtekar and Baru, 1991; Ambasala, 1992;). Plants as always are still the most absolute origin of drugs for the maximum number of people living in the world(Hamburger and Hostellmann, 1991). But efficacy of many of this vegetation by scientific investigation, a versatile program has begun with the intention of discovering plants for their antimicrobial activity. The plants from written works are picked based on frequent utilization in the cure of diseases that are infectious like fever, bronchitis, ulcer, diarrhea, dysentery, and skin disease.

Among several infectious diseases, upper respiratory tract infections are found to be more common and quite significant in the world's population. Hence the present-day analysis is done to verify the antimicrobial activity of four plants (*Oimum sanctum*, *Adhatodavarica*, and *Solamumtrilobalum*) traditionally used by the villages as remedy for upper respiratory tract infections and their combined action against the upper respiratory tract bacteria and also against sputum of a patient directly.

The main purpose and objectives of the present study are due to 3 main factors. Firstly the present-day medical amenities are still not appropriately distributed and hence are

inaccessible to most of the people in the rural regions despite their rapid progression. Secondly, the plant beneficial systems are keenly woven together with the beliefs and lifestyle of people's rural living. Thirdly, even where modern medical facilities are available to the people they are at times too costly and therefore are replaced with alternations from herbal medicines.

MATERIALS AND METHODS

COLLECTION OF PLANT MATERIAL

The plants put to use under study *Solamumtrilobalum* L., *Adhatodavasica* Nees., and *Ocimum sanctum* L., were collected in different parts of Palayamkottai in Tirunelveli district in Tamil Nadu. The plant specimens were identified taxonomically at St.Xaviers's College Herbarium. From the collected plant materials the leaves were separated and subsequently shade-dried at ambient temperature of 29-30°C. The dried materials were powdered with the help of a mixer grinder.

PREPARATION OF THE EXTRACT

The shade-dehydrated and finely powdered plant materials (10 gm / 150 ml) were aqueous extracted using Soxhlet apparatus at 90 – 100c° for 5-7 hours until the solvent came back colorless. An aqueous suspension of the leaves represents the formation usually taken in conventional medicine (Satyavathi, 1987). The drawn-out was stored at 4°C until used just before use the extract was lyophilized to remove the traces of water by a hot sand bath and then used for the test.

In addition, aqueous extracts of each plant sample were prepared by boiling the ground tissue in water for 2-3 hours and then filtering to separate the residue filtrate. The filtrate was subsequently lyophilized and all removed or taken out were stored at 5°C till put to use in antibacterial activity tests.

TEST ORGANISMS

The test micro-organisms for determination of antibacterial activity were *Staphylococcus*, *Klebsiella pneumonia*, *Pseudomonas* and *Salmonella typhi*. The pure bacterial cultures were obtained from the Microbiology Department of Paramakalyani College, Alwarkurichi, and were maintained in the nutrient agar medium. Samples from each test bacterial culture were sub-cultured in individual tube slants of nutrient agar medium and incubated for 48 hours at room temperature.

In addition to the above bacterial culture the sputum from the upper respiratory tract of the patient was collected aseptically for the test.

MEDIUM PREPARATION

The antibacterial tests were conducted using 10cm diameter Petri dishes containing suitable sterile nutrient media. The nutrient agar medium was prepared by taking the following materials (Gunasekaran, 1995).

Peptone	- 2.5 gm
Beef-extract	- 1.5 gm
Agar agar	- 10 gm
Glucose	- 2.5 gm
Distilled water	- 500 ml

pH was adjusted to 7.2.

The above chemicals were taken in a conical flask and 500 ml of water that was distilled was added. The contents were heated till they were completely dissolved and then plugged with cotton and autoclaved.

EXPERIMENTAL

ANTIBACTERIAL ASSAY

The antibacterial functions of the plant extracts were evaluated using an agar-disc-diffusion way. A suspension of the bacterium was prepared in a sterilized saline solution to get a turbid bacterial culture. The prepared suspension of each bacterium was flood inoculated onto the surface of nutrient agar medium contained in plates (10 cm in diameter) and dried for 2-3 minutes. After which, solubilized drawn outs were permitted to soak up into sterile 6 – 9 mm diameter What man No. 1 filter paper discs for 2 – 3 minutes, then air dried at 35°C and put onto the new inoculated nutrient agar plates having bacterial, midway between the plate center and edge. The same procedure was repeated with the rest of the discs. The disc impregnated with aqueous solvent, dried and kept on the agar surface, worked as a negative control and the disc impregnated with antibiotics – streptomycin and chloramphenicol were put on the same agar surface, resulted as a positive control. All discs were placed equidistantly from each other. The plates containing discs were placed in an incubator for 24-28 hours at 35°C - 37°C and the inhibition of bacterial increase was determined by evaluating the size of the transparent area around every disc.

In the case of sputum inoculation, the streak plate method was used and the rest of the procedure was the same as that of the antibacterial assay mentioned above.

BACTERIAL STAINING

Method of Identification of Bacteria into Gram-Positive and Gram Negative

The identification of bacteria as gram-positive and gram-negative was done by the following method (Gunasekaran, 1995).

- A loop full of bacterial inoculums was taken and smeared on a glass slide.
- The smear was heat-fixed and subjected to four different reagents.
- The smear was stained with primary stain, crystal violet, for 20 seconds.
- After this period it was washed with distilled water and then subjected to a mordant stain iodine solution for 1 minute.

- The bacterial stain was then washed with decolourizing agent alcohol which was followed by the staining with counter stain safranin.

The colour changes that occur in bacterial cells at each stage were observed.

The bacteria that hold on to the primary stain and appear dark blue are called gram-positive, although those that lost the crystal violet and counter-stained by safranin appear red, are called gram-negative bacteria.

RESULTS AND DISCUSSION

RESULTS

The result achieved from the antibacterial screening of extracts from various plant species at different concentrations (60 mg/ml, 120 mg/ml) reported in Tables – 1 and 2.

The aqueous extracts of all the tested plant species showed greater antibacterial activity against gram-negative bacteria *Klebsiella pneumonia* (Fig. 1), *Pseudomonas aeruginosa* (Fig. 3), *Salmonella typhi* (Fig. 4), and the gram-positive bacteria *Staphylococcus aureus* (Fig. 2).

ANTIBACTERIAL ACTIVITY OF ADHATODA VASICA NEES.

The leaf extracts of *A.vasica* at a concentration of 60 mg/ml showed different degrees of antibacterial activity. The maximum activity of inhibition was shown against *Klebsiella pneumonia* (12 mm) and the other bacterial species showed decreased activity in the descending order viz., *Pseudomonas* (7.5 mm), *Staphylococcus aureus* (7 mm), *Salmonella typhi* (5 mm).

At high concentrations (120 mg/ml) the plant extract showed greater inhibition against *Staphylococcus* (11 mm) and reduced inhibition against *Klebsiella pneumonia* (8 mm).

ANTIBACTERIAL ACTIVITY OF SOLANUM TRILOBATUM L.

The different degrees of antibacterial activity at a concentration of 60 mg/ml shown by the *S.Trilobatum* L. were in descending order, *Pseudomonas* (24 mm). The plant extracts at low concentration (60 mg/ml) showed their maximum inhibition between 10 – 12 mm which is more or less equal to antibiotics activity.

DISCUSSION

Although all the plants used in this study are known and used as remedies for upper respiratory tract infections, the testing for antibacterial activity of these plants individually and collectively on various bacteria and sputum samples is able to provide a clear cut idea on their effects in comparison with the commercially available antibiotics.

The *Adhatodavasica* Nees., a small evergreen shrub flourishing all over the plains of India. It is a famous drug in Ayurvedic and Unani medicine. According to Nagaraju and Rao (1990), the decoction of these leaves and roots with pepper is an excellent remedy for cough, bronchitis, and asthma. The study here provides a scientific basis for the utilization and substitution for antibiotics and informs that vaccine and vasicinone extracted from *Adhatodavasica* are good for asthmatic bronchitis due to their bronchodilatory activity and hence are used widely in preparing cough syrup like glycogen, zecuf, and crux, etc. This plant inhibited the growth of *Staphylococcus aureus*, *Klebsiella pneumonia*, *Pseudomonas aeruginosa* and *Salmonella typhi*.

The *Solanum trilobatum* L. is a much-branded climbing shrub with sharp recurved, short, compressed spines used in chronic bronchitis and as a treatment for cough. Govindhan et al., (1999) suggest that *S. trilobatum* L. could be used to treat respiratory diseases. The leaf extracts in this study showed their inhibition of *Staphylococcus aureus*, *Klebsiella pneumonia*, *Pseudomonas aeruginosa*, and *Salmonella typhi*, and this paved the way for its role in upper respiratory tract diseases.

Ocimum sanctum Linn., an upright, herbaceous much branched, softly hairy, annual, 30-75 cm high is seen throughout India ascending to 1,800 m in the Himalayas. Kokate et al., suggest that the juice could be used as anticatarrhal, spasmolytic, and diaphoretic. Parida et al., (1997) informed about its poliovirus type replication. Tulasi is very effective in the cure of tropical pulmonary eosinophilia in children (Sharma et al., 1987b). Its antispasmodic and antiasthmatic activity have been studied their antibacterial activity against *Staphylococcus aureus*, *Klebsiella pneumonia*, and *Pseudomonas aeruginosa*. The maximum inhibition was found against *Klebsiella pneumonia*.

The individual and collective antibacterial activities of plants are compared with each other for their effects. This in turn compared with the commercially used antibiotics to check the possibilities of substitutions.

The above-mentioned 4 plants showed their antibacterial activity against the sputum sample which has gram-positive bacteria, *Neisseria*, *Staphylococcus*, *Streptococcus*, and gram-negative *Bacilli*. Aneja (1996) reported that the potential pathogens, such as *Staphylococcus aureus*, *S.epidermidis*, *Haemophilus influenza*, *Streptococcus pneumonia*, and *Neisseriameningitis* in the upper respiratory tract of an infected person as well as in healthy persons.

The most frequent microorganisms found in acute bacterial infections of the respiratory tract are *Pneumococcus pneumonia*, *Klebsiella* species, *Haemophilus influenza*, *Staphylococcus aureus*, and *Streptococcus* species. The antibacterial venture of the extract from the plant used here indicated that these are good substitutes for commercially available antibiotics namely chloramphenicol and streptomycin. Michael et al., (1993) reported that streptomycin's antibacterial spectrum includes many gram-negative bacteria including, *Franciellatularesis* and some organisms in the *Salmonella* group. It is inhibitory for several species of *Mycobacteria*. Chloramphenicol is a broad spectrum that acts as opposed to many gram-positive and gram-negative bacteria. The possibility of serious side effects such as blood dyscrasias has limited the use of general antibiotics.

According to Kumar and Swatikumar (1998), streptococcus causes tonsilitis, scarlet fever, and cellulitis, staphylococcus is responsible for carbuncles, and boils, *Salmonella typhi* causes typhoid fever and *Klebsiella* and is responsible for pneumonia. The present study in the plant extracts is a remedy for all the above-mentioned ailments and the combined action of these plant extracts is more effective than the individual extracts.

REFERENCES

1. Nayudakka, Y., Seshachar, B.R., Mehra, P.N., Mithal., R.S., Sastri, B.N., Verma, S.P., Ganapathi, K., Rangaswami, S. (Ed.) (1972)
 - a. *Solamumtrilobatum* Linn.
 - b. *Wealth of India*, IX: 395 – 396.
2. Chaturvedi, G.N., Rai, N.P., Ramdhani, Tiwar, S.K. (1983)
 - a. A clinical trial of *Adhatodavasica* syrup in the patients of non-ulcer dyspepsia.
 - b. *Ancient Science Life*, 3(1): 19 – 23.
3. Das, S., Chandra, A., Agarwal, S.S., Singh, N. (1983)
 - a. The *Ocimum sanctum* in the treatment of viral encephalitis antiseptic,
 - b. *Journal of Ethnopharmacology*, 80(7): 323 – 327.
4. Sakina, M.R., Dandiya, P.C., Mamrard, M.E., Mameed, A. (1987)
 - a. An experimental study evaluating the anti-inflammatory and antipyretic activity in animals,
 - b. *Journal of Ethnopharmacology*, 21: 153 – 163.
5. Janssen, A.M., Scheffer, J.C., Wtezurebananza, L., Baermeim Suendsen, A., (1989)
 - a. Antimicrobial activities of some *Ocimum* species grown in Rwanda,
 - b. *Journal of Ethnopharmacology*, 26: 57 – 63.
6. Nagaraju, N. and Rao, K.N.(1990)
 - a. A survey of plant crude drugs of Rayayaseema, a.p.
 - b. *Journal of Ethnopharmacology*, 29: 137 – 158.
7. Osman, M., Abdel Nabi, Emil, Resinger, C., Franzf, Reinlmales, Franz (1992)
 - a. Antimicrobial activity of *Acaciamilitia*,
 - b. *Journal of Ethnopharmacology*, 37: 77 – 79.
8. Catherine, W., Giithinj AND Kokward, J.O. (1993)
 - a. Ethnomedicinal study of major species in the family Labiatae from Kenya,
 - b. *Journal of Ethnopharmacology*, 39: 197 – 203.
9. Gunasekaran, P. (1995)
 - a. In: *Laboratory manual in Microbiology*,
 - b. New Age International (P) Ltd. Publishers, New Delhi, p.
10. Locher, C.P., Burch, M.T., Mower, H.F., Berestecky, J., Davis, H. (1995)
 - a. Antimicrobial activity and anti-complement activity of extracts obtained from
 - b. selected *Haivaum* medicinal plants,

- c. Journal of Ethnopharmacology, 49: 23 – 32.
- 11. Urzua, A., Torres, R., Munoz, M., Palacios, Y.(1995)
 - a. Comparative antimicrobial study of Resinous exudates of some Chilean Haplopappus,
 - b. Journal of Ethnopharmacology, 45: 71 – 75.
- 12. Aneja, K.R. (1996)
 - a. Experiments in microbiology plant pathology tissue culture and mushroom cultivation.
 - b. WishwaPrakashan Publication.
- 13. Parida, M.M., Pandya, G., Bhargava, R. (1997)
 - a. Assessment of in vitro antiviral activity of certain Indigenous plants against poliovirus type 3,
 - b. Indian Journal of Virology, 13(2): 101 – 105.
- 14. Tereschuk, M., Riera, M.U.Q., Castro, G.R., Abdala, L.R., (19997)
 - a. Antimicrobial activity of flavonoids from leaves of Tagetesminuta,
 - b. Journal of Ethnopharmacology, 56(3).
- 15. Valsaray, R., Pushpangadan, P., Smith, V.W., Adbersen, A., Nyman, U.(1997)
 - a. Antibacterial screening of selected medicinal plants from India,
 - b. Journal of Ethnopharmacology, 58.
- 16. Farooaq, S., Pathak, G.K., (1998)
 - a. Therapeutic potential of MAP3 in Rhesus monkeys suffering from pharyngitis,
 - b. Review of Aromatic and Medicinal Plants, MFP News, 8(4): 3.
- 17. Abreu, P.M., Martins, E.S., Kayser, U., Binoseil, K.U., Siems, R., Seemann, A., Frevert, J. (1999)
 - a. Antimicrobial, antitumor, and antileishmania screening of medicinal plants from Guinea – Bissau.
 - b. Phytomedicine 6(3): 187 – 195.
- 18. Alasbahi, A.H., Safiyeva, S., Cracker, L.E. (1999)
 - a. Antimicrobial activity of some Yemeni medicinal plants,
 - b. Journal of Herbs, Species and Medicinal Plants, 6(3): 75 – 83.
- 19. Arora, O.S., Jasleen Kaur, A. (1999)
 - a. Antimicrobial activity of species,
 - b. International Journal of Antimicrobial Agents, 12(3): 257 – 262.

20. Asima Chakraborty, Brantner, A.M., (1999)
 - a. Antibacterial steroid alkaloids from the stem bark of *Halorrhena pubescent*,
 - b. *Journal of Ethnopharmacology*, 68(1/3): 339 – 344.
21. Atalaysokmen, Brain, M. Jones, Murat Erturk (1999)
 - a. The in vitro antibacterial activity of Turkish medicinal plants,
 - b. *Journal of Ethnopharmacology*, 67(1): 79 – 86.
22. Bagchi, G.D., Amrita Singh, Khanuja, S.P.S., Bansal., R.P., Singh, S.C., Sushil Kumar (1999)
 - a. Improved method of extraction analysis of vasicine and vasicinone, the alkaloids of *AdhatodavasicaNees*.
 - b. *Indian Drugs*, 20(1): 16 – 18.
23. Catherine, W., Githinji and Kokward, J.O. (1993)
 - a. Ethnomedicinal study of major species in the family Labiatae from Kenya,
 - b. *Journal of Ethnopharmacology*, 39: 197 – 203.
24. Devi, P.V., Gamasoundari, A. (1999)
 - a. Modulation of glutathione and antioxidant enzymes by *Ocimum sanctum*
 - b. *Indian Journal of Experimental Biology*, 37(3): 262 – 268.
25. Didry, M., Seidel, V., Dubrevil., L., Tillequin, F., Bailleui, F.(1999)
 - a. Isolation and antibacterial activity of phenylpropanoid derivatives from *Bolletanigra*,
 - b. *Journal of Ethnopharmacology*, 67(2): 197 – 202.
26. Facey, P.C., Pascoe, K.O., Porter, R.B., Jones, A.D.(1999)
 - a. Investigation of plants used in Jamaican folk medicine for antibacterial activity,
 - b. *Journal of Pharmacy and Pharmacology*, 5(12): 1455 – 1460.
27. Gnan, S.O., Demello, M.T. (1999)
 - a. Inhibition of *Staphylococcus aureus* by aqueous *Goiba* extracts,
 - b. *Journal of Ethnopharmacology*, 68(1/3): 103 -108.
28. Govindan, S., Viswanathan, S., Vijaysekaran, V., Alakappan, R.(1999)
 - a. A pilot study on the clinical of *Solanum xanthocarpum* and *Solanum trilobatum* in bronchial asthma,
 - b. *Journal of Ethnopharmacology*, 66: 205 -210.
29. Kedzie, A. (1999)
 - a. Activity of alcoholic extract of *Allium sativum* against anaerobic bacteria,
 - b. *Herbapolonica*, 45(1): 27 – 32.
30. Koga, T., Hirota, N., Takumi, K.(1999)
 - a. Bacterial activities of essential oils of basil and sage against a range of bacteria and the effect of these essential oils on *Vibrio parahaemolyticus*.
 - b. *Microbiological Research*, 154(3): 267 – 273.

31. Kudi, A.C., Umomm J.U., Eduvie., L.O., Gefu, J.(1999)
 - a. Screening of some Nigerian medicinal plants for antibacterial activity,
 - b. Journal of Ethnopharmacology, 67: 225 – 228.
32. Lall, N., Meyer, J.J.N. (1999)
 - a. In vitro inhibition of drug resistance and drug-sensitive strains of Mycobacterium tuberculosis by ethnobotanically selected South African plants,
 - b. Journal of Ethnopharmacology, 66(3): 347 – 354.
33. Madhva, S. and Balu,S. (1999)
 - a. Ethnobotanical studies on Solanumtrilobatum – An Indian drug plant,
 - b. Journal of Ethnopharmacology, 60(1): 79 – 82.
34. Martinez Vazquez, M., Gonzales, Esquinca, A.R., Cazaresluna, L., Morenogutierrez, M.N., Carcia - Argael., A. (1999)
 - a. Antimicrobial activity of Bysonimacrassifolia,
 - b. Journal of Ethnopharmacology, 60(1): 79 – 82.
35. Nakamura, C., Veda - Nakamura, T., Bando, E., Melu, A.F.N., Cortez, D.A.G., Diasfilmo, B.D.(1999)
 - a. Antibacterial activity of Ocimumgratissianum,
 - b. Memorias do institutooswaldo, 94(5): 675 – 678.
36. Nimri, L.F., Meqdam, M., Alkofahi, A. (1999)
 - a. Antibacterial activity of Jordanian Medicinal Plants,
 - b. Journal of Ethnopharmacology, 37(3): 196 – 201. .
37. Perez, C., Agnese, A.M., Cabrera, J.L. (1999)
 - a. The essential oil Seneciograveolens Chemical composition and antimicrobial activity tests,
 - b. Journal of Ethnopharmacology, 66(1): 90- 96;
38. Raivra, I., Berkov, A., Parkinson, A., Tavakilian, G., Mori,S., Meurer-Grimes, B.(1999)
 - a. Antimicrobial activity of neotropical wood and back extracts,
 - b. Pharmaceutical Biology, 37(3): 208 – 215.

39. Rajbhandar, M., Schodke, T.M., (1999)
 - a. Antimicrobial activity of some Nepalese medicinal plants,
 - b. Pharmazie, 54(3).
40. Salem, M., Kamel., A., Lixiaoyang, Swaray, J.(1999)
 - a. Antibacterial triterpenoids isolated from Lantana camera,
 - b. Pharmaceutical Biology, 37(1): 63 – 66.
41. Shekumar and Krishna Gopal (1999)
 - a. Screening of plant species for inhibition of bacterial population of raw water,
 - b. Journal of Environmental Science and Health, 34(4): 975 – 987. Part a.
42. Sotanaphun , U., Lipipun, V., Suttisri, R., Bavovada, R. (1999)
 - a. Antimicrobial activity and stability of Tingenone derivatives,
 - b. Planta Medica, 65(5): 450 – 452.
43. taiwo, O., Xuhongx, Lee, S.F., (1999) Antibacterial activity of extracts from Nigerian Chewing Sticks,
 - a. Phytotherapy Research, 13(8): 675 – 679.
44. Tsednova, L.P., Romanov.O.E., Romanova, T.O., Lavrentieva, E.P.(1999)
 - a. Antimicrobial activity of essential oil of Artemisia terchiana Web.
 - b. Rastitel Nye Resursy, 365(4): 28 – 61.
45. Vikas Dhingra, Srinivas rao Pakki, Lakshmi narasu, M. (1999)
 - a. Antimicrobial activity of artemisinin and its precursors,
 - b. Current Science, 78(6): 709 – 713.
46. Michael j. Pelczar, jr., chan, e.c., Sand moel r. Krieg (1993)
Microbiology ed. 5thTarlaMegraw-Hill Publishing Company Limited New Delhi.
47. Dorman, H.J.D., Deans S.G. (2000)
 - a. Antimicrobial agents from plants and antibacterial activity of plant volatile oils,
 - b. Journal of Applied Microbiology, 88(2): 308 – 316.
48. Hamasaki, N., Ishii, E., Tominaga, K., Tezuka, V., Nagaoka, T., Kadota, S., Kuroki, T., Yano, I. (2000)
 - a. Highly selective antibacterial activity of novel quinolone alkaloids from a Chinese
 - b. herbal medicine, Goryuyu against Helicobacter Rylori in vitro,
49. Samy, R.P., Ignacimuthu, S. (2000)

- a. Antibacterial activity of some folklore medicinal plants used by tribals in the Western Ghats of India,
 - b. Journal of Ethnopharmacology, 69(7): 63 – 71.
- 50. Samy, R.P., Ignacimuthu, S. (2000)
 - a. Antibacterial activity of some folklore medicinal plants used by tribals in the Western Ghats of India,

Survey on Medicinal Plants at Sri Seetharama Chandra Swamy Temple, Jagadamba Junction, Visakhapatnam, India.

Dr. Adi Seshu Gidugu

Associate Professor, Department of Botany,
St. Ann's Degree College for Women,
Malkapuram, Visakhapatnam, Andhra Pradesh, India.

ABSTRACT

A plant survey work has been conducted in Sri Seetharama Chandra Swamy temple at Ambika Bagh near Jagadamba junction in Visakhapatnam. Nearly 130 species are listed out, 33 species of trees, 36 shrub species, 49 species of herbs and 12 climbing species are noticed. Among them are many sacred, ornamental and herb species are recorded. For every species botanical name, family, life form and its use was given. A very old large Peepal tree, Tulasi vanam and nearly 120 species of plants medicinal importance are the special attraction of this present work.

Keywords: Survey, Plant, herbs and medicinal.

INTRODUCTION

Sri Seetharama Chandra Swamy temple at Ambika Bagh near Jagadamba junction in Visakhapatnam has a long history. This temple is in the heart of the city. It has the area of 2.70 acres. This was donated by the Chemudu state in the past. Its head Rani Chandramathi Devi donated the land to the Endowments department but it took a long time to build a temple here. Meanwhile the land was left barren. So, it has many plant species. Now the present survey aims on the listing and collecting the plant species from that area. A detailed observation was undertaken to explore. Large number of species were reported in that small area. Though it is present on the road view exposed to various pollutants it maintained a good number of species which has high medicinal value.

METHODOLOGY

Initially a field note book was maintained after every survey. Some plant specimens are collected. Some are preserved in wet formalin. Some are pressed, dried and pasted on herbarium sheets. These specimens are identified with the help various floras and authentic herbaria available in the Andhra university Botany department. A herbarium and wet samples are preserved in the laboratory of St. Ann's college, Malkapuram, Visakhapatnam. This work may be providing very interesting information for the Botany personal and others enumerators. Initially a field note book was maintained after every survey.

RESULTS AND ANALYSIS

Nearly 130 species are listed out in this area. Among them there are 33 tree species, 36 shrub species, 49 herb species and 12 climbing species. There are different types of plants; nearly 12 species of sacred plants like Jammi, Ravi Tulasi, Maredu, TellaJilledu, Vepa etc are present. A large Peepal tree is there which has a 20 feet wide large trunk and there branches here spread upto 40 feet. It has worshiped every day. A Tulasi vanam is being maintained where 5 to 6 kinds of *Ocimum* species like *Ocimum sanctum*, *Ocimum basilicum*, *Ocimum tenuiflorum*, *Ocimum gratissimum*, *Ocimum americanum* are present which have high medicinal value. Other plants with high medicinal values, like Maredu, and Jammietc are also being maintained. The species like *Tephrosia purpurea*, *Tephrosia villosa*, *Croton bonplandianum*, *Heliotropium indicum* like herbs, which are available here because it is an undisturbed area for a long time. There are not available outside. Now there are 38 species of ornamental plants. Other normal trees and various shrubs and herbs, species account for 80. All these 130 accounted plant species of this area belong to 50 families (Fig 1 & Table 1). Among them Malvaceae, Lamiaceae, Apocynaceae, Fabaceae, Euphorbiaceae show more species than others. Remaining families may show a smaller number of species but a greater number of individuals is present. Some of the individuals of species are less in number because of the construction work. But large area was left undisturbed. Another important point noticed here is that the plants are healthy and showing large sized plant parts than the other areas may be due to the availability of the organic matter and other conditions which has to be worked out later.

Mostly almost all plant species are showing medicinal importance. Not only are they economically important, medicinal importance cannot be over looked. Now a day's people are showing interest towards traditional medicine than the allopathic medicine because of the side effects they are giving. An attempt was made in this work to identify its medicinal importance also from different sources. Many plants are useful to cure Asthma, dysentery, cancer, digestive troubles, gynaec problems, kidney stones even HIV. The plants are showing antibiotic, antioxidants and health promoting alkaloids in them. Much work can be concentrated in this aspect in future.

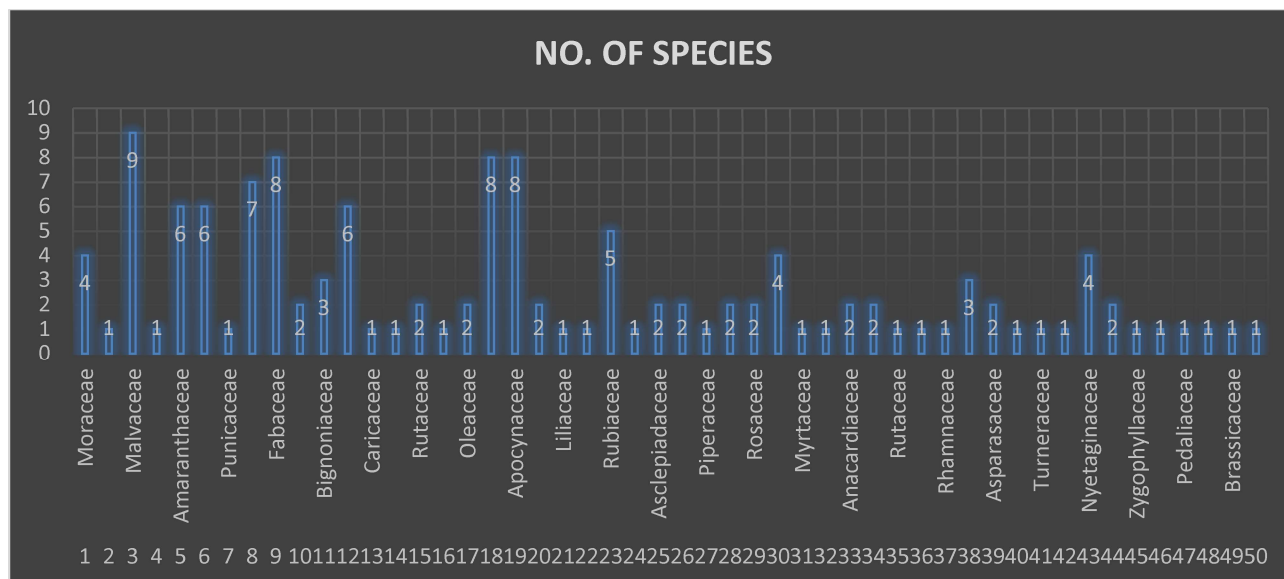


Figure 1: Representing the medicinal plants

Table 1: List of medicinal plants along with their medicinal uses

S.No	BOTANICAL NAME	COMMON NAME	FAMILY	HABIT	USES
1	<i>Ficus religiosa</i>	Raavi	Moraceae	Tree	Medicinal,rel
2	<i>Cocos nucifera</i>	Coconut	Areaceae	Tree	Economical, scared
3	<i>Abutilon indicum</i>	Muturubunda	Malvaceae	Shrub	Weed, medicinal
4	<i>Tinospora cordifolia</i>	Thippatheega	Menispermaceae	Climber	Medicinal
		(Guduchi)			
5	<i>Acalypha indica</i>	Muripinda	Euphorbiaceae	Herb	Medicinal

6	<i>acalypha ianceolata</i>	Muripinda	Euphorbiaceae	Herb	Medicinal
7	<i>Pongamia pinnata</i>	Kanuga	Fabaceae	Tree	Medicinal
8	<i>Punica granata</i>	Pomegranate	Punicaceae	Tree	Medicinal, economic
9	<i>Tridax procumbens</i>	Gaddichamanthi	Asteraceae	Herb	Medicinal, weed
10	<i>Thespesia populnea</i>	Ganga ravi	Malvaceae	Tree	Medicinal
11	<i>Amaranthus viridis</i>	Thotakura	Amaranthaceae	Herb	Economic
12	<i>Hibiscus rosasinensis</i>	Mandara	Malvaceae	Tree	Ornamental, Medicinal
13	<i>Azadirachta indica</i>	Vepa	Meliaceae	Tree	Medicinal, Sacred
14	<i>Tecoma stans</i>	Suvarnaganneru	Bignoniaceae	Tree	Ornamental, medicinal
15	<i>Murayya koenigii</i>	Curry leaves	Rutaceae	Tree	Economic, medicinal
16	<i>Asystacia gangetica</i>		Acauthaceae	Climber	Weed, medicinal
17	<i>Carica papaya</i>	Papaya	Caricaceae	Tree	Edible, medicinal.
18	<i>Andrographis paniculata</i>	Nelavemu	Acanthaceae	Herb	Medicinal Weed
19	<i>Melia azadirachta</i>	Tnurakavepa	Meliaceae	Tree	Medicinal
20	<i>Trianthema portulacastum</i>	Pigweed	Aizoaceae	Herb	Weed, medicinal
21	<i>Citrus iemon</i>	Lemon	Rutaceae	Tree	Edible, medicinal
22	<i>Millingtonia hortensis</i>	Punnaga	Bignoniaceae	Tree	Ornamental
23	<i>Amaranthus viridis</i>	Thotakura	Amaranthaceae	Herb	Edible

24	<i>Vernonia cinerea</i>		Asteraceae	Herb	Weed , medicinal
25	<i>Achyranthes aspera</i>	Uttareni	Amaranthaceae	Shrub	Medicinal,sacred
26	<i>Antigonon leptopus</i>	Coral vine	Polygonaceae	Twiner	Ornamental, medicinal
27	<i>Sida cordifolia</i>	Chirubunda	Malvaceae	Herb	Weed, medicinal
28	<i>Sida acuta</i>	Wire weed	Malvaceae	Herb	Weed, medicinal
29	<i>Amaranthus spinosus</i>	Mulbathota	Amaranthaceae	Herb	Weed, medicinal
30	<i>Alternanthera sessilis</i>	Ponnagantikura	Amaranthaceae	Herb	Weed, medicinal
31	<i>Jasminum sambac</i>	Malle(Jasmine)	Okaceae	Shurb	Ornamental, medicinal
32	<i>Jasminum officinalis</i>	Sannajaji	Okaceae	Climber	Ornamental, medicinal
33	<i>Coleus ambonicus</i>	Mexican mint	Lamiaceae	Herb	Ornamental, medicinal
34	<i>Ficus elastica</i>	Rubber plant	Moraceae	Shurb	Ornamental
35	<i>Tephrosia purpurea</i>	Vempali	Fabaceae	Shurb	Weed, medicinal
36	<i>Tephrosia villosa</i>	Vempali	Fabaceae	Shurb	Weed, medicinal
37	<i>Gomphrena globosa</i>	Bogada	Amaranthaceae	Herb	Weed ,medicinal
38	<i>Croton bonplandianum</i>	Galivanamokka	Euphorbiaceae	Herb	Weed, medicinal
39	<i>Plumeria alba</i>	Nooruvarahalu	Apocynaceae	Tree	Ornamental
40	<i>Plumaria rubra</i>	Nooruvarahalu	Apocynaceae	Tree	Ornamental
41	<i>Commelina benghalensis</i>		Commelinaceae	Herb	Weed, medicinal
42	<i>Thevetia nerifolia</i>	Yellow oleander	Apocynaceae	Shrub	Ornamental
43	<i>Andrographis aniculata</i>	Nelavemu	Acanthaceae	Herb	Weed, medicinal
44	<i>Aloe vera</i>	Kalabanda	Liliaceae	Shrub	Medicinal
45	<i>Justicia procumbens</i>		Acanthaceae	Herb	Weed, medicinal

46	<i>Nerium oleander</i>	Ganneru	Apocynaceae	Shrub	Ornamental
47	<i>Musa paradisiaca</i>	Banana	Musaceae	Tree	Edible
48	<i>Neolamarckia cadamba</i>	Kadamba	Rubiaceae	Tree	Ornamental , sacred
49	<i>Tabernae montana divaricata</i>	Nandi vardhanam	Apocynaceae	Shrub	Ornamental
50	<i>Catharanthes rosia</i>	Billaganneru	Apocynaceae	Herb	Ornamental
51	<i>Cleome viscosa</i>	Vominta	Capparidaceae	Herb	Weed, medicinal
52	<i>Ixora coccinia</i>	Vennamuddapulu	Rubiaceae	Shrub	Ornamental
53	<i>Ocimum sanctum</i>	Basil	Lamiaceae	Shrub	Medicinal
					Sacred
54	<i>Ocimum basilicum</i>	Sweet basil	Lamiaceae	Shrub	Medicinal, sacred
55	<i>Ocimum tenuiflorum</i>	Holy basil	Lamiaceae	Shrub	Medicinal, sacred
56	<i>Ocimum gratissimum</i>	Krishna tulasi	Lamiaceae	Shrub	Medicinal, sacred
57	<i>Calotropis gigantea</i>	Tellajilledu	Asclepiadaceae	Shrub	Sacred, medicinal
58	<i>Calotropis procera</i>	(Jilledu)milk weed	Asclepiadaceae	Shrub	Medicinal
59	<i>Chloris barbata</i>		Poaceae	Herb	Weed
60	<i>Chrysanthemum indica</i>	Chamanthi	Asteraceae	Herb	Ornamental
61	<i>Ruellia tuberosa</i>	Water canon	Acanthaceae	Herb	Weed, medicinal
62	<i>Evolvulus alicinoids</i>	Vishnu krantha	Convolvulaceae	Climber	Weed
63	<i>Piper betel</i>	Betel leaf	Piperaceae	Climber	Medicinal
64	<i>Rosa indica</i>	Rose	Rosaceae	Shrub	Ornamental
65	<i>Rosa alba</i>	White rose	Rosaceae	Shurb	Ornamental

66	<i>Capsicum annum</i>	Mirapa	Solanaceae	Herb	Edible, medicinal
67	<i>Psidium guajaya</i>	Jama	Myrtaceae	Tree	Edible, medicinal
68	<i>Diffenbachia sequine</i>	Dumb cane	Araceae	Herb	Ornamental
69	<i>Malvaviscus arboreus</i>	Mirapamandara	Malvaceae	Shrub	Ornamental
70	<i>Phyllanthes niruri</i>	Nelavsiri	Euphorbiaceae	Herb	Medicinal,weed
71	<i>Phyllanthes maderaspatensis</i>	Nelavsiri	Euphorbiaceae	Herb	Medicinal,weed
72	<i>Euphorbia hirta</i>	Asthma plant	Euphorbiaceae	Herb	Weed, medicinal
73	<i>Artocarpus integrifolia</i>	Jack fruit	Moxaceae	Tree	Edible, medicinal
74	<i>Chitorea ternatea</i>	Sankhupushpi	Fabaceae	Climber	Ornamental, medicinal
75	<i>Tagetus patula</i>	Banti	Fabaceae	Herb	Ornamental, medicinal
76	<i>Borreria hispida</i>	Button weed	Rubiaceae	Herb	Weed ,medicinal
77	<i>Eupatorium perfoliatum</i>	Bone set	Asteraceae	Shurb	Weed, medicinal
78	<i>Magifera indica</i>	Mango	Anacardiceae	Tree	Edible
79	<i>Annona squamosa</i>	Sethaphalam	Anacardiceae	Tree	Edible
80	<i>Cassia angustifolia</i>	Senna tree	Caesalpinaceae	Tree	Ornamental
81	<i>Cassia auriculata</i>	Thangedu	Caesalpinaceae	Shrub	Weed, medicinal
82	<i>Fiscus benghalensis</i>	Marri	Moraceae	Tree	Medicinal, sacred
83	<i>Aegle marmelos</i>	Maredu	Rutaceae	Tree	Medicinal
84	<i>Premna serratifolia</i>	Headache tree	Lamiaceae	Tree	Medicinal
85	<i>Prosopis cineraria</i>	Jammichettu	Fabaceae	Tree	Medicina,sacredl
86	<i>Thespesia populnea</i>	Ganga ravi	Malvaceae	Tree	Medicinal

87	<i>Terminalia catapa</i>	Badam	Combretaceae	Tree	Medicinal
88	<i>Zyziphusj ujuba</i>	Regu	Rhamnaceae	Tree	Medicinal
89	<i>Hibiscus mineranthus</i>	Nityamalle	Malvaceae	Shrub	Ornamental
90	<i>Albezzia lebbeck</i>	Thurai	Mimosaceae	Tree	Ornamental
91	<i>Morinda tinctoria</i>	Thogaru	Rubiaceae	Tree	Ornamental
92	<i>Bauhinia purpurea</i>	Deva kanchanam	Caesalpinaceae	Tree	Ornamental
93	<i>Parthenium hysterophorus</i>	Vayyaribhama	Asteraceae	Herb	Weed
94	<i>Dracaena reflexa</i>	Dracaena	Asparagaceae	Herb	Ornamental
95	<i>Allamanda cathartica</i>	Yellow trumpet	Apocynaceae	Climber	Ornamental
96	<i>Allamanda blancheti</i>	Pink trumpet	Apocynaceae	Climber	Ornamental
97	<i>Codiaeum variegatum</i>	Croton	Euphorbiaceae	Shrub	Ornamental
98	<i>Commelina beghalensis</i>	Day flower	Commelinaceae	Herb	Weed
99	<i>Datura metel</i>	Ummetha	Solanaceae	Shrub	Weed
100	<i>Ricinus communis</i>	Castor	Euphorbiaceae	Shrub	Weed, medicinal
101	<i>Leucas aspera</i>	Thummi	Lamiaceae	Shrub	Medicinal,sacred
102	<i>Centella asiatica</i>	Saraswatiaku	Apiaceae	Herb	Weed, medicinal
103	<i>Crotalaria juncea</i>	Jute	Fabaceae	Shrub	Weed
104	<i>Acacia melonoxylan</i>	Thumma	Mimosaceae	Tree	Ornamental
105	<i>Ageratum conyzoides</i>	Chicken weed	Asteraceae	Shrub	Weed
106	<i>Ocimum americanum</i>	Kukkathulasi	Lamiaceae	Shrub	Weed
107	<i>Panicum repens</i>	Torpedo grass	Poaceae	Herb	Weed
108	<i>Oldenlandia umbellata</i>	Diamond flower	Rubiaceae	Herb	Weed
109	<i>Turnera ulmifolia</i>	Yellow alder	Turneraceae	Herb	Weed
110	<i>Desmodium gangeticum</i>	Salparni	Fabaceae	Herb	Weed
111	<i>Heliotropium indicum</i>	Naga danthi	Boraginaceae	Herb	Weed, medicinal

112	<i>Mirabilis jalapa</i>	Chandra kantha	Nyctaginaceae	Shrub	Ornamental, medicinal
113	<i>Bougainvillea spectabilis</i>	Kagithampulu	Nyctaginaceae	Shrub	Ornamental
114	<i>Lantana camara</i>	Wild Rage	Verbenaceae	Shrub	Ornamental
115	<i>Crossandra infundibuliformis</i>	Kanakambaram	Acanthaceae	Shrub	Ornamental
116	<i>Tribulus terrestris</i>	Palleru	Zygophyllaceae	Herb	Weed
117	<i>Argemone mexicana</i>	Prickly poppy	Papavaraceae	Herb	Weed
118	<i>Pavonia ylanica</i>	Ceylon swamp	Malvaceae	Shrub	Weed
119	<i>Sesamum indicum</i>	Nuvvulu	Pedaliaceae	Herb	Weed
120	<i>Cissus quadrangularis</i>	Nalleru	Vitaceae	Shrub	Weed, medicinal
121	<i>Merrimia tridentata</i>	Merremia	Convolvulaceae	Climber herb	Weed, medicinal
122	<i>Solanum xanthocarpum</i>	Kantakari	Solanaceae	Herb	Weed
123	<i>Physalis minima</i>	Budamakaya	Solanaceae	Herb	Weed
124	<i>Brasica nigra</i>	Mustard	Brassicaceae	Herb	Weed, medicinal
125	<i>Desmodium triflorum</i>	Tick clover	Fabaceae	Herb	Weed
126	<i>Boerhavia diffusa</i>	Punarnava	Nyctaginaceae	Climber	Weed, medicinal
127	<i>Boerhavia erecta</i>	Punarnava	Nyctaginaceae	Climber	Weed, medicinal
128	<i>Waltheria indica</i>	Sleepy morning	Sterculiaceae	Herb	Weed
129	<i>Lippia nodiflora</i>	Capeweed	Verbenaceae	Herb	Weed
130	<i>Pyrostegia venusta</i>	Flame vine	Bignoniaceae	Shrub	Ornamental

REFERENCE

1. Wisht, R., 1840 – 50. Illustrations of Indian Botany, J.B. Phroah., Madras.
2. Bentham, G. & J. D. Hooker (1862-83) Genera plantarum, (3vols). London.
3. Hooker, J.D. et al, 1872 – 97. The flora of British India (7 vols) London (rep. ed. 1973)
4. Rao; R.S. & Hara Sree Ramulu 1986 (a) Flora of Srikakulam district, Andhra Pradesh, India (Flora of Indian series) Indian Botanical society, Meerctet.
5. Brandes, D. (1906) Indian tr ees, London.
6. Gamble, J.S. & Fischer, C.E.L. 1915 – 36 Flora of the presidency of Madras (3 vols) London. (Rep.ed. 1957)
7. Venkateswarlu, J, Murthy, P.V.B & Rao, P.N. (1972). The flora of Visakhapatnam, Andhra Pradesh academy of sciences, Hyderabad.
8. Benerjee, D.K. observation on the ethno Botany of Araku valley, Visakhapatnam, Andhra Pradesh. J. sci. club 1977, 14 – 21.
9. Sudhakar, S & R.S. Rao, Medicinal plants of east Godavari district. Andhra Pradesh. J. Econ. Tax. Bot, 1985, 7: 399 - 406, 238 – 244.
10. Venkanna, P, (1990), Medicinal plant health of Krishna district (A.P), a preliminary survey. Anci. Sci. life, 102: 137-140.
11. Rao, R.R. (1994) Biodiversity in India (Floristic Aspects). Bishen Singh Mahendra pal Singhm.
12. Gupta, V.G., S.J. Hussain & S.Imam 1997. Medico ethno botanical survey of Paderu forest of Araku valley, Andhra Pradesh, India. Fitoterapia, 1997, 68: 45 – 48.
13. T. Pullaiah & E. chennaiah 1997, Flora of Andhra Pradesh (3 vols).
14. Pullaiah, T and Sandhya Rani (1999) Trees of Andhra Pradesh, India Regency publications. New Delhi.
15. Singh, N.P.; KarthiKeyan, S; Lakshmi marasmhan, P & Prasanna, P.V (2000). Flora of Maharastra state, (Botanical survey of India, Calcutta).
16. Reddy, C.S, K.N. Reddy & S.N. Jadhav, threatened (medicinal) plants of Andhra Pradesh. Medicinal plants conservation centre, EPT, RI, 2001, Hyderabad.
17. Scot land, R. W & Wortky, A. H (2003) how many species of seeds plants are there? Taxon 52 (1). 101- 104.
18. Pullaiah, T and Karuppuswamy (2007) Flora of Andhra Pradesh, India (vol 5) scientific publishers, Jodhpur.
19. Pandey, B.P. (2008) Taxonomy of Angiosperms, in a text book of Botany, Angiosperms, New Delhi, S. Chand & company Ltd. 3 – 395.
20. Tripathi, S.C. & Srivastava, M (2010) Ethno medicinal flora of Euphorbiaceace used in dermatological problems, Indian J. Traditional Knowledge, 9: 318 – 320.

Women Political Leadership- Issues & Suggestions

E.P.S. BHAGYA LAKSHMI

Asst. Professor in Political Science & Public Administration,
St. Ann's College for Women, Malkapuram, Visakhapatnam-11
E-mail : eaabhagyalakshmi@gmail.com

Abstract

Leadership is an ability of an individual to lead other individuals or organizations to achieve defined goals. In the word LEADERSHIP, there are 3 important components.

- Leader
- Situation
- Followers

What makes a man leader?-is an interesting question in the political science. The answer is explained in the form of 3 theories.

- Traits theory
- Situational theory
- Followers theory

Among all these theories, most of the research scholars concentrated on Traits theory.

Leadership is necessary to achieving objectives, motivating followers, changing the behavior of others and solve the conflicts among the individuals. This leadership play an important role particularly in political arena. Because political leadership is combined with power. Hence, It is the highest leadership

In India, in the aspect of political leadership, men dominated the entire scenario. Women represented below 10% in leadership position in the first 5 decades of independence. Illiteracy, domestic burden, health problems, character assassination and lack of reservations in state and union legislatures etc. are the causes for less political representation of women in leadership roles.

73rd & 74th amendment acts of Indian constitutions granted 33%

Reservations to women in rural & urban governance. They boosted women leadership. Still there are some issues in women political leadership like shadow power, no change in corruption and criminalization of politics and lack of continuity in political career etc. To solve these issues, 33 % reservations should be given to women at state and union legislatures. The women laws should be implemented properly. Women's health, education and employment should be given top priority. Domestic burden should be shared by men and gender decimation should be eradicated by agents of social change.

Keyword: Leadership, Motivation, Reservation, Health and Education.

INTRODUCTION

Leadership is an ability of an individual to lead other individuals or organizations to achieve defined goals. In the word LEADERSHIP, there are 3 important components.

- Leader
- Situation
- Followers

What makes a man leader?-is an interesting question in the political science. The answer is explained in the form of 3 theories.

- Traits theory
- Situational theory
- Followers theory

Among all these theories, most of the research scholars concentrated on Traits theory. According to academicians, the following are the important traits or qualities of a leader.

- Intelligence
- Clear communication
- Patience
- Commanding power
- Healthy & attractive physical personality
- Emotional stability
- Inter personal skills
- Team work
- Hard work
- Punctuality
- Charisma
- Values
- Discipline&
- Dedication etc.

Leadership is necessary to achieving objectives, motivating followers, changing the behavior of others and solve the conflicts among the individuals. This leadership play an important role

particularly in political arena. Because political leadership is combined with power. Hence, It is the highest leadership.

In India, in the aspect of political leadership, men dominated the entire scenario. Women represented below 10% in leadership position in the first 5 decades of independence. Slowly, because of 73rd & 74th amendment acts to Indian constitution, women leadership role in rural & urban governance has increased. In Andhra Pradesh 50% of the seats and in all other states 33% of seats are reserved for women in local self-Governments. That boosted women leadership at lower level. Their leadership is still less than 12% in state and union level political positions. The following are the causes for backwardness of women in political Leadership:

- Illiteracy and lack of political awareness
- Domestic burden
- Health problems due to reproductive system
- Lack of family support to step into public life
- Character assassination
- Lack of reservations in state Assemblies & union Parliament
- Unable to co-ordinate family life & public life
- Criminalization of politics
- Gender discrimination &
- Lack of financial independence etc.

As a result, they unable to perform political leadership role effectively. But if 48% of the population cannot represent their voice and cannot take part in decision making, there is no meaning to Democracy. Hence, their political leadership should be boosted. Reservations in local self-governments are given to achieve this boosting to women leadership.

The 30 years of women reservations at local self-governments brought the following positive changes in women political leadership.

- Women became a power group.
- Their participation in politics increased
- Their voting percentage and their membership in political parties are increased.
- Their social status has increased
- Many changes came in marriage system, family system and their role in economy.
- Women headed families increased.

- The number of single women is increased.
- Families are slowly ready to invest money on women's education.
- Women mobility has increased
- Families are becoming supportive for their political participation & public life.

In spite of the above positive changes, the following issues became more in Indian women political leadership:

- ❖ Shadow power
- ❖ No change in corruption, criminalization of politics & caste politics
- ❖ Lack of continuity in women leadership
- ❖ Women are not in a position to go ahead in political ladder.

Let us discuss the above issues. Everywhere, in the name of woman leader, either father or husband or son used to exercise power. The studies are saying that 85% of women political leaders are confined only to signature or thumb impression. Their power became shadow power or nominal power. Though, women political leadership was increased, there was no change in corruption, criminalization and caste politics. Women could not show any difference in political field. Moreover, the women political leaders are not in a position to continue their political career for a long period. After 5 years, 60% of women are going back and confine to Domestic work by leaving political career. They unable to go ahead in political leadership ladder. That means, the women who performed political positions at local self-governments are not able to contest and win in the Assembly and the parliament elections.

The above issues should be addressed properly to make women political leadership successful and effective. Much research is going on the above issues. If following measures will be taken by political parties, society & people, the women can play an effective role as leaders.

- Proper leadership training should be given to women to make them effective leaders. NGOs and the Government training centers should concentrate on this immediately. Then women reservations will be fruitful.
- There should be 33% reservations in the state and the union legislatures. Then the women can continue their political carrier from bottom to top.

- Gender discrimination should be eradicated completely. The parents, teachers, religious heads, NGOs, media, political leaders and administrators should take lead to eradicate this discrimination. They have to change the attitude of people regarding gender discrimination
- Role of caste, money and muscle power should be controlled first. Electoral reforms should come in this direction & they must be implemented effectively. Then, ordinary women also can contest in the elections freely.
- NSS, NCC Adventure camps, self-defense courses etc. should made compulsory in education. So that the confidence, courage and awareness of women will be increased.
- There should be elections to students at college level. They promote women political participation. It is evident that most of the leaders are being emerged from educational institutions.
- Women laws should be implemented strictly. There should be a separate mechanism to implement these laws. Women police stations women task forces and Mahila courts should work effectively to protect women's rights.
- From K.G. to P.G. free education should be available to women. More hostels, short stay homes should be constructed throughout the country.
- Women's health, particularly reproductive health should be given top priority. Nutritious food should be supplied to every women who is suffering from Anemia.
- There should be equal pay for equal work for women. Crèches should be made available to working women in all work sites and organizations.
- Employment opportunities should be increased to women.
- Domestic burden should be shared by male members of the family.
- Women should be recruited in top positions in all political parties
- All women organizations should come together and make women movement a strong movement.

Thus, many changes should come in our government and society to promote women political leadership. If women will become political leaders and occupy higher positions, the progress of women will be achieved. Some sensitive issues like importance of individual Toilets, domestic violence and sexual harassment will be focused effectively. Because these issues should be understood by women more deeply rather than men. At this juncture, we have to remember Lord Bryce statement for the need of women leadership. That is -“The people who are away to politics are equally away to the benefits that come through politics”.

REFERENCE

1. “Towards Equality” report on The status of women in India [1974-75]
2. Emerging pattern of political leadership by AK Gupta [Mittal publications – 1991]
3. Women & politics by Kiran saxena [Gyan publishing house – 2009]
4. Women & Political leadership by Alka saxena [Adhyayan publisher – 2011]
5. She, The leader: Women in Indian politics by Nidhi Sharma [Aleph book company – 2023]

THE ROLE OF SHGs IN ACHIEVING WOMEN EMPOWERMENT

Y. ANASUYA DEVI,

Asst. Professor in Politics & Public Administration,

St. Ann's College for Women, Malkapuram, Visakhapatnam-11

E-mail : anasuyastanns@gmail.com

Abstract

Women are 48% in the population. But in every sphere, they are backward. If they are properly engaged in public life, Miracles will happen in the world. Women empowerment can be defined as “ women’s sense of self worth , their ability to determine their own choices and right to influence social change for themselves and others”. In ordinary sense, It means, the decision making capacity of women in every field is known as WOMEN EMPOWERMENT. It is necessary for creation of wealth, eradication of poverty, achieving liberty, equality and justice. If once women are empowered, social evils will be eradicated and gender bias will be vanished. Literacy, women movements, Economic freedom, self-help groups[SHGs], political participation etc.. are necessary for women empowerment. Particularly Learning, Labor & Leadership [3 Ls] are necessary for women empowerment. In all these aspects, SHGs play more important role in achieving women empowerment. The following things will happen because of SHGs.

Membership in SHGs lead to increase in self confidence and economic independence of women. Their leadership qualities will be promoted. The organizational skills, communication skills, Decision making, problem solving and negotiation skills will be sharpened. Their social status and respect at home will be increased. There will be a change in their slandered of living. Social evils and superstitions will be eradicated. They participate in politics actively. They will become pressure groups and ready to do lobbying to achieve their demands. Their health conditions will be improved. In a single sentence, there will be a Revolution in the life of women and society because of SHGs. All these ultimately lead to Women empowerment.

Keyword: Empowerment, Liberty, Equality, Independence and Communications.

INTRODUCTION

Women are 48% in the population. But in every sphere, they are backward. If they are properly engaged in public life, Miracles will happen in the world. Women empowerment can be defined as “ women’s sense of self worth , their ability to determine their own choices and right to influence social change for themselves and others”. In ordinary sense, It means, the decision making capacity of women in every field is known as WOMEN EMPOWERMENT. It is necessary for creation of wealth, eradication of poverty, achieving liberty, equality and justice. If once women are empowered, social evils will be eradicated and gender bias will be vanished. Literacy, women movements, Economic freedom, self-help groups[SHGs], political participation etc.. are necessary for women empowerment. Particularly Learning, Labor& Leadership [3Ls] are necessary for women empowerment. In all these aspects, SHGs play more important role in achieving women empowerment. The following things will happen because of SHGs.

Membership in SHGs leads to increase in self confidence and economic independence of women. Their leadership qualities will be promoted. The organizational skills, communication skills, Decision making, problem solving and negotiation skills will be sharpened. Their social status and respect at home will be increased. There will be a change in their slandered of living. Social evils and superstitions will be eradicated. They participate in politics actively. They will become pressure groups and ready to do lobbying to achieve their demands. Their health conditions will be improved. In a single sentence, there will be a Revolution in the life of women and society because of SHGs. All these ultimately lead to Women empowerment. Let us examine these advantages of SHGs in a detailed way.

1. **SELF CONFIDENCE:** We know that 15 to 20 women will come together and form a self-help group. Some groups will come together and make a cluster. If women will be organized into a group and discuss certain things, their self-confidence will be improved. This increase in self-confidence is the first step in women empowerment.
2. **ECONOMIC INDEPENDENCE:** In every SHG, women will save money and start a small enterprise or a cottage industry with that saved money as investment. They earn profits and well equipped with business techniques. Within few days, they get economic independence and stand on their own legs. Generally, women will show interest in

individual business like starting a shop or a tea stall etc.. This individual enterprise will make them economically independent.

3. **LEADERSHIP QUALITIES:** Communication skills, clarity in thinking, discipline, command, control, public relations will make women leaders at grass root level.
4. **ORGANISATIONAL SKILLS:** The women in SHGs should conduct periodical meetings & discussions. They have to organize different events depending on situations. For that organizational skills like preparation of agenda, doing prayer, presiding over the meetings, addressing the gathering, Controlling the members and singing national anthem etc.. are necessary. These skills slowly equipped by women.
5. **COMMUNICATION SKILLS:** Communication plays an important role in empowerment. Public speaking is an art. The women of SHGs slowly get the boldness & courage to face the audience. In public speaking, they learn maintenance of time and using correct language. This public speaking makes women as Empowered leaders.
6. **DECISION MAKING & PROBLEM SOLVING SKILL:** The women of SHGs will take decisions in the meetings. They identify the problem, search for the alternative solutions and take a rational decision collectively. They solve many problems of their own like domestic violence, sexual harassment etc.. These decision making and problem solving skills are essential in women empowerment.
7. **NEGOTIATION SKILL:** Convincing others on a particular subject is very important to get their support. For this, Negotiation skill is very important. . Credibility & rationality are the two pillars of negotiation skill. These two will be developed in the meetings of SHGs.
8. **SOCIAL STATUS:** Generally, women are treated as second-rate citizens in the society. There is gender discrimination from womb to tomb. Their social status will be improved by SHGs. They will take part in every important subject. Social status and identity are very necessary in empowerment.
9. **HONOR & RESPECT AT HOME :** The honor& respect of women at family level is low because of their illiteracy, lack of awareness & lack of social life. Once, they join in SHGs , their social status will be increased and they get proper recognition in the society. That promotes honor & respect at home. The husband, children & elders will treat her with dignity.
10. **INCREASE IN STANDARD OF LIVING:** Standard of living will be increased when income will be more. SHGs will provide income and income sources. As a result, the

standard of living of that entire family will be increased. E.g.- so many women constructed houses and provided higher education to their children with the assistance of SHGs and the available loans in SHGs. This clearly shows their improvement in standard of living.

11. **SOCIAL REFORMS :** There are many social evils like- Dowry, No scope for Widow re-marriage, child marriages etc.. Which are against to the women's Dignity. If once women will discuss about these issues in SHGs, they will be aware and start agitations. These agitations will eradicate the above social evils.
12. **END TO SUPERSTITIONS:** There are so many superstitions like- animal sacrifice and other things, which has no scientific reason. The women of SHGs acquire scientific temperament and put an end to these superstitions.
13. **POLITICAL PARTICIPATION:** The leadership which the women acquired in SHGs will lead to political participation. They not only confine to voting, but also contest in elections, take active role in political campaign and movements. They fight for their share in political parties and positions. This high degree of political participation leads to women empowerment.
14. **LOBBYING :** The SHGs will become lobbies and improve their bargaining power in government to achieve their demands. They will become pressure group in democracy.
15. **IMPROVEMENT IN HEALTH CONDITIONS:** Nearly 80% of women are suffering from anemia. Their immunity is comparatively low. In SHGs every month, there will be a health talk & they discuss about food and nutrition frequently. All these will improve their health conditions. Particularly, they discuss about Reproductive health without any hesitation. That plays an important role in empowerment of women.

Thus, SHGs play an important role in women empowerment. Bangladesh & India proved this fact. Hence, Let us strengthen SHGs to make our women empowered.

Reference

1. Empowerment of women in India : new strategies by Nagaraju Battu [Regal publications]
2. Self help groups and women empowerment in India by Arjun Yallappa pangannavar [New century publications – 2012]
3. Women Empowerment, Gender equality and social justice by Prof. Kanta kataria and Dr. Mahesh Parihar [Books treasure – 2017]

ETHICS IN MARKETING

K Uma Maheswari

M.Com, M.Phill, NET

E-mail :maheswariu281@gmail.com

Abstract

The popular opinion about Marketing is that it is related to business and firms try to cheat customers through false advertisements. However, “Marketing” like “Charity” begins at home. The paper is conceptual in nature and has attempted to project the concept that ethics in marketing can be achieved only if ethics are imparted at home followed by educational institutions.

The effect of the present day environment and technology in further distancing the people from adopting ethical practices has been brought out. The four stages of life, practiced in ancient India have been correlated with the Maslow’s Theory of Hierarchical needs for explaining the transactions between individuals and the society. Open-source material has been used to bring out how watch-dog agencies such as Ethisphere Institute monitor ethics of firms in the western countries. A similar approach is recommended for implementation by the Confederation of Indian Industries.

Towards the end, few suggestions have been recommended for educational institutions, which have the potential both to mould the minds of students towards ethical code of conduct as well as to educate them in the professional aspects of the subject called “marketing”.

The best policy for companies to enhance their ethical standards is to encourage their advertising/ marketing managers to sell the reputation of the firm along with their products, both goods and services.

Keywords : Marketing, Ethics, Ethisphere, Professional and Services.

INTRODUCTION

The popular opinion about Marketing is that it is related to business firms and these firms try to cheat customers through false advertisements and make huge profits. There are numerous web-pages on how the firms should practice ethical code of conduct and aim to remain relevant in the long-term business. While this is true to a large extent, if one were to introspect, one would realize that “Marketing” like “Charity” begins at home. This paper aims to bring out the origins of “marketing” in the human minds at a tender age and how the lack of focus on “Moral Science” creates an unfavorable circumstance for ethics to be found in “marketing”. Towards the end a few suggestions have been recommended for educational institutions, which have the potential both to mould minds of students towards ethical code of conduct as well as to educate them in the professional aspects of the subject called “marketing”.

Human Mindset

The English Dictionary indicates the meaning of “*market*” as “*an area or arena in which commercial dealings are conducted*”. The word “*marketing*” is explained as “*the action of promoting and selling of products or services*”. This has made all of us to believe that marketing is related to markets which are separate arenas, located elsewhere. When we contemplate further, we realize that the arena includes our homes. Since the term “marketing” quite explicitly brings out the idea of promoting, it need not be limited to products or services. It applies to everything such as humans, household items, knowledge, beauty, skill etc. We tend to hear ourselves and our neighbors say that our children are scoring good grades, they are good dancers/ singers, our siblings are beautiful, tall, good sportspersons, our parents are rich, and that we possess luxury mobile phones, cars, wrist-watches, jewelry etc. In the author’s opinion, it is nothing but marketing ourselves, our relatives, house hold possessions etc. The great “Bard of Avon”, William Shakespeare has written in his famous play “As you Like it”, that “*All the world’s a stage, And all the men and women merely players*”. In the author’s opinion, a similar couplet can be made that “*All the world’s a market, And all the men and women are competitive marketers*”. Besides, just like “Charity begins at home”, it can be said that “Marketing begins at home”. Therefore, it is evident that “marketing” is natural to the human mind set.

Today's Environment

Till about 30 years ago, familial society was encouraged in India. Strangers were introduced as relations such as Brother, Sister, Uncle, Grandmother, etc. Age took priority and was respected. The effect of media was almost nil and the pre-dominant source of entertainment was through movies, where-in the protagonist was a good child, spouse, parent, friend, citizen etc. In most movies, the antagonist reformed by the end of the movie. Justice prevailed and the villains were only arrested. Atonement was usually through self inflicted injury or through seclusion from the society. The movies ended with a Happy Group Photo. A large number of movies were based on the Gods and how people used to be protected by the divinity. This inadvertently conditioned the young minds to feel a sense of belongingness to the society, develop mutual trust and respect and also defined the boundaries of relationships. It also assured them that the “Good” wins over the “Evil” under all conditions.

In the last two decades, the entertainment channels have sprung up like mushrooms. Every TV serial shows that own family and relatives are always conspiring against each other. The protagonist ends the societal evils by hacking the evil-doers (without regard to law). Law enforcement is usually biased to the villains. Calling parents by name and elderly as oldies is portrayed as cool and plain speaking thereby lifting the boundaries on the relationships. Go-getter attitude is glorified even if the desires are unlawful and amoral. Atonement is by lip-service and facial expressions (and we wonder whether the character is repenting at all). The movies end with gore and corpses strewn around. A large number of movies and TV shows are based on Horror involving Ghosts and paranormal. Repeated exposure to such influence would indoctrinate young minds to be selfish, skeptical and hedonistic. Once used to such visuals, the human mind becomes insensitive to the wrong and demands more violence and evil. Further inadvertently, the citizens are condition to lose hope and made to feel that the dark side of human personality is to be glorified and peace and restraint are for the losers in life.

Technological Advancements

The advent of digital technology has brought various services to our palms, which could be utilized by a soft touch of the “App”. While it has numerous benefits in terms of day-to-day

working, it is opined that its greatest strength is also its greatest threat to the society. The biggest advantage that the digital technology has brought to the society was that of “shrinking the globe”. People at various parts of the world are connected in their personal relationships. Similarly, people across the globe are networked to promote mutual business interests. This however is also the singular most detrimental effect that the digital technology has brought to the society. It has psychologically isolated people.

Since the mutual dependence has been reducing, the virtues of society are slowly being eroded. For e.g. in earlier times, the neighbors used to visit the elderly if they staying by themselves (which in itself was a rare phenomenon) without the support of their children or other relatives. They would ask them if something is required such as grocery, medicines etc. In the present day, since online shopping has been made possible, the items are being procured through websites and there is hardly any interaction between the lonely elderly people (which is on the rise) and their neighbors. This resulted in preclusion of an important human aspect.

When the neighbors used to enquire for requirements, they also used to look up the health and comforts of the elderly by spending time with them. Thereby the older generation was receiving not just the physical comfort but emotional comfort as well. With the online shopping, the emotional comfort has gone missing thereby making the elderly vulnerable to psychological ailments such as depression etc. Similarly, every age group is affected by this alienation of human interaction. Children are increasingly getting into online games and most of them involve violence. This conditions their minds to consider killing as a normal feature of human existence and makes them comfortable with the idea. The Youth are being lured by online gambling sites, yellow journalism and immoral content thereby making them lose their moral fiber. The Adults are facing the stress at offices owing to exponentially growing requirements to meet online deadlines. Since everything is possible on the human Laps (laptops) the management is constantly nudging their employees to perfect their efforts. The results of these factors are evident and the happiness quotient is steeply spiraling downwards as can be seen statistically where-in our country ranks 6th in Global GDP while it ranks 139th in the World Happiness Index.

Marketing

Since marketing is a natural trait of humans, one needs to introspect if it is being done ethically. The main difference between ethics and laws is that of legality. Ethics define actions that can be discriminated as morally right and wrong, while Laws define actions that are legally

correct and incorrect. Not following ethical code of conduct does not attract legal action by the judiciary. However, it can disturb the societal eco-system and can cause disharmony among the citizens. While introspecting, one needs to judge the merits of one's actions whether it is absolutely necessary. Towards this, the marketer needs to evaluate three things as mentioned by great saints. Every thought of individuals are to pass through three gates before they are realized into words or deeds. The three gate keepers within human minds should question whether "Is it True?", "Is it Necessary?" and "Is it Kind?".

The same approach needs to be adopted by marketers to question themselves. While promoting their children and siblings, every individual should ponder as to whether what they are saying is true or not. This would dissuade them from vain boasting and false claims. Even if it is true, they should think whether it is necessary. By offering a thought, one realizes that more often than not, it would be unnecessary. In exceptional circumstances, if elders of the house use it in a constructive manner, they can motivate the siblings and cousins by quoting the behavior and moral conduct of good children. The last question that one should impose upon oneself should be whether their marketing methods are kind. It means that while praising the attributes, one should be careful of not demoralizing the others or even worse, inculcating rivalry among contemporaries.

If such an approach is followed, while marketing the familial attributes, it would help in propounding ethics at home. The Children would learn whatever they are exposed to and so they would learn to speak the truth, behave honestly and live in harmony with others around them. These children when they grow up to become good citizens would be taking up employment and follow ethical practices which would enable healthy competition and all round growth of personalities as well the society.

Since "marketing" is innate to the human mind set, this paper presumes that the entire firm or a company is inclined to marketing their products except a few exceptions like those who are in core production job. Therefore statistical data as to how many employees are involved with marketing has not been stated. Besides, the open-source is not clear on the percentage of employees related to marketing department in India. Statistics are available for the USA wherein 40-60% of the employees are related to marketing and advertising. However, it is the author's opinion that the remaining percentage of employees who are associated with HR, IT etc would

also be marketing their company at all available opportunities. So it can be construed that 100% of the employees would be involved with marketing either directly or indirectly.

Ethics in Marketing

In the ancient India, the societal norms divided the human life into four stages that every individual had to comply. When analyzed from the transactional perspective, in the first stage, the individual only takes from the society during the childhood. In the second stage, it involved both taking and giving between the individual and the society which was adhered by the Youth. In the third stage, the individuals were giving without taking anything from the society. This was to be followed by the middle age citizens who still had the physical and psychological strength to contribute willingly but not on demand. This helped them to repay the society. In the fourth stage, the individuals neither gave nor took anything from the society. This was meant for the elderly and it was the time for introspection of the lives that they led, the changes they made or could not make, repent their wrong doings and guide the youth to not to repeat the same mistakes.

Almost a similar model was predicted by Maslow in his theory of hierarchical needs. It begins with Physiological needs and progresses to Safety, Social, Esteem and ends with Self-actualization of humans. However, both the ancient Indian way of life as well as Maslow's Theory of Hierarchical needs have left the application of the theories to the individuals and societies/ organizations. There is no clear demarcation as to when a particular level is deemed to be complete and when the next level is to commence. An attempt has been made in this paper to define bench marks for transiting between the levels of hierarchy, so that the business organizations could utilize them for enhancing their ethical standards.

It is a known fact that every individual works for self-promotion and success. Therefore this aspect does not warrant further debate. However, in doing so, it is the responsibility of every citizen to follow the principle of "live and let live". The father of the nation, Mahatma Gandhi had remarked that there is enough in this world for everyone's need and not for everyone's greed. Although the 'Greed' and 'Need' appear to be relative and subjective, a benchmark needs to be setup. It is opined that this benchmark could be defined as an individual's ability to consume. In most cases, it starts with the consumption of goods and services by the individual and then it extends to that of the near and dear ones, friends, followers and the circle keeps

growing. Thus, the individual's "Greed" is apparently projected as his/ her "Need". Since, societies at large and business firms in particular are made up of individuals it is appreciated that if every individual stops drawing resources after his/ her consumption, the organization would tend to become ethical.

The concept is further elaborated by citing some examples. The present day education is elaborate and therefore the student phase is stretching almost upto 25 years of age, in contrary to ancient times when the education is deemed to have been completed by adolescence. This extension in duration makes the individuals dependent on the society with nothing to offer in return. If the NCC/ NSS/ vocational courses are made compulsory for all those above the age of 18, the society can expect to get dividends from each individual above this age. The above mentioned benchmark for limiting the consumption of resources at individual level (without it being extended to others known to them) would enable to predict that the physiological needs are met with.

During the youth phase, upto the age of 45-50yrs, a maximum wage ceiling as envisioned by Mahatma Gandhi, could be imposed. This would reduce the disparity between the haves and have-nots and would bring in certain equilibrium in the society. It would enable to meet the psychological needs of Safety and Social needs as per Maslow. At the adult phase of life, citizens are to be encouraged to offer free services to the society related to their professions, for may be 2-3 hrs a week. The contributory services could vary between giving free speeches at educational institutions to that of holding free medical camps or preparing free engineering drawings for civil constructions or for participating in cleanliness drive etc. This could be done upto 60-65yrs of age. The free service would earn respect for the individuals in the society and the good-will so developed would naturally enable them to gain Esteem in the society as per the Maslow's needs. From this age onwards, till the final stages of the human life, the utmost priority should be to maintain a good health so that there is no disturbance to others because of them by maintaining a Spartan life-style. This period could be utilized for self-actualization which will accrue huge benefits to the society if every individual adopts this practice.

In the business companies, the top-management needs to play a major role in ensuring ethical practices. If the Chairman sets targets to his employees to maximize profits by whatever means, it would imply that he/ she is willing to look the other way, even if the employees resort to unethical methods. Conversely, if the employees are given a target by their Managing Director

to promote good-will and attract more customers, it would translate into the employees treating the customers with dignity and expanding the customer base. While doing so, the employees should focus on the 'spirit' of dealing with their customers rather than the legality of the 'terms and conditions' and the fear of getting caught by the law-enforcement agencies.

In most cases, the marketers come under scrutiny for not delivering the promises that they make while trying to influence customers. If the marketing agents bring out the various options available with them for meeting the requirements of customers and indicate to them upfront, it would aid in developing a mutual trust. It is opined that this will enable establishment of long term relations between the firm and its customer. This in other words is the assurance that the company will last long and would not wind up within a few years.

To enable that the ethics in marketing is sustained in the society, already companies are being graded for their Ethical Standards by watch-dog agencies such as Green Citizen and Ethisphere Institute. These agencies accord weightage to various aspects of Ethics such as the company's program on ethics, promoting the Ethics Culture amongst its employees, Their Societal Impact and Reputation. In short the company's are evaluated for their policy on ethics and their ability to implement the same. Presently, in India the agency called Futurescape is evaluating the firms only on their Corporate Social Responsibility (CSR). It is suggested that the Confederate of Indian Industries could constitute a watch-dog agency for evaluating the Indian companies on Ethical Practices.

The best policy that the companies can adopt to enhance their ethical standards is to encourage the philosophy that their advertising/ marketing managers and sales persons should sell the reputation of the firm along with the product (either goods or services).

Educational Institutions

The paper has so far brought out the aspects pertaining to the Natural human mind set which craves for marketing every attribute of self, related humans and their possessions and believes in the dictum "If you got it, flaunt it"; Today's media which is inadvertently conditioning the minds to think and act "dark"; Advanced technology which is psychologically alienating core human emotions; The diverse expectations from "marketing" between the firms (which wants to maximize profits) and the customers (who expect ethical behavior). It is said that "Today's children are tomorrow's citizens...".Against the already mentioned backdrop, the

educational institutions have a greater role and responsibility in grooming their students as good citizens of future which should translate into ethics in marketing. Since marketing is the natural trait of every individual, if the institutions can inculcate ethics and values among its students the society could become a better place to live.

The Educational institutions have a target audience ranging between the age group of 3-23, with students studying from Nursery to Master's degree. At every age and stage of education, the teaching methodology should be different. Whether the present syllabus and teaching is translating into the students imbibing ethics and moral values is highly debatable. In this context certain suggestions have been provided for enhancing the ethical standards in marketing.

Suggestions

The first step towards imparting training on abstract yet relevant subjects such as ethics and moral values is to ensure that these subjects are made compulsory by the States. Presently, teaching of moral science in schools and colleges is not mandatory in India and does not have evaluation or certification. The state of Odessa, has recently made ethics as a compulsory subject which needs to be taught in all six terms of Graduation such as BSc, BCom and BA which include examination and certification.

Whenever the States introduce and make such subjects compulsory, the educational institutions may not be able to find professional teachers in these subjects. Initially they need to train their teachers on these subjects, through online education sites such as Udemy, Edx etc which offer capsule courses on Ethics. The program varies anywhere between one hour to 10 weeks. Therefore, it should be mandatory for institutions to train at least 1-2 teachers in such courses.

The Conduct Certificate issued by the Schools and Colleges need to have different grades instead of a single one such as "Satisfactory". Thus the institutions can ensure that they would provide citizens who are not only accomplished in professional subjects but also on conduct and the grades would enable to identify the suitability of such citizens for different types of jobs.

The award winners from the academic years should not only be restricted to the performance of the students in professional subjects but also on morals and integrity. Therefore a separate award for the "Best Ethical Student" needs to be constituted.

Present day society has trivialized the aspects of Ethics and Morals as something that is adopted by those who are left behind. Therefore it is the obligation of the society to demonstrate that “Honesty Pays”. Accordingly, a scholarship or honorarium needs to be introduced in academic institutions for students with high moral values.

The course on Moral Science, Ethics and Values should continue for all courses including Phd Courses at different levels of Ethics such as day-to-day conduct and behavior without causing disturbance to fellow human beings, feeling of compassion etc.; work ethics such as not letting down colleagues or aspiring to rise through unfair means, etc.; academic ethics such as plagiarism etc.; all of which stem from the same natural trait of the human mind i.e. marketing of self, near and dear ones, house hold possessions, company’s goods and services etc.

The States could make NCC/ NSS/ Vocational Courses mandatory for students above the age of 18years to receive contribution from them for the society.

The Confederation of Indian Industries (CII) could constitute a watch-dog agency for evaluating the Indian companies on Ethical Practices similar to that of foreign agencies such as Ethisphere.

Although the paper has focused on the Ethics and not on legal rules, if the option to accumulate wealth beyond a certain value can be curbed legally, it may be possible to arrest the “Need” escalating into “Greed”. Gandhiji had foreseen this a long time ago and proposed a “Maximum Wage” similar to a “Minimum wage”.

Conclusion

The society is slowly spiraling towards decay of the moral standards and it is time that we took notice of the same. It would enable to make the society a pleasant place to live without fear or prejudice. It is therefore time that each one of us introspects deeply about the decaying ethical standards of the society, which cannot be substituted with legal connotations. If the society commits to raising the ethical standards, the high expenditure incurred in the design and development of sophisticated equipment to reduce crime could be brought down and the financial savings could be re-appropriated for alleviating poverty, providing additional facilities to the citizens etc.

The paper has attempted to project a concept by which the ethics in marketing can be achieved only if ethics are imparted at home followed by educational institutions. Just like

Orchards need to be planted and nurtured so that the fruits are available after years, the society needs to invest in educational institutions to realize future ethical leaders. It cannot be achieved in a day, but over a decade of sustained efforts. Further, ethics cannot be inculcated by firms alone when most of the students join the jobs at the age of 25 and it would be too late. Further, for teaching, the tutor should be accomplished in the subject. It would not be possible to teach something if the teacher itself is not trained. The conceptual paper has been written independently based on experience and observations. However, the literature which has been the source of inspiration (read at various stages of life) has been indicated for the reference of readers.

REFERENCES

1. ***Constructive Programme (Its Meaning and Place)*** By: M.K. Gandhi Published by : Navajivan Mudranalaya, Ahmedabad (1945)
2. ***India of My Dreams***By: M. K. Gandhi Published by: Navajivan Mudranalaya, Ahmedabad (1947)
3. ***Gandhian Economic Thought***By : J. C. Kumarappa, Published By Sarva Seva Sangh Prakashan Varanasi (1951)
4. ***Business and Ethics*** By: Amol Karnad Published by: Alacrity Foundations, Madras. (1996)
5. ***Ethics, Values, Trust and Conflict Resolution***By: K Uma Maheswari Under Publication by UGC Care (2022)

Stress Relief for Women's Health

Manage Your Emotions

Mrs. P.Lavanya

HOD, Commerce

St. Ann's College for Women, Malkapuram, Visakhapatnam.

E-mail : lavanya1ryali@gmail.com

ABSTRACT

Respire Well

To get the elucidation

To control all worries

To focus and solve issues

And not to quit. Stagnation occurs when we are living to please other Instead of wondering” why this is happening to you, think of why it is happening to you.” Stress in men and women is different but still shows the common effect physically and mentally to change the situation and events in one's life. Women's stress is experienced due to various reasons and issues based on their perceptions on various situations. The dictionary definition of tension includes hardship, strain, physical emotions or mental disability which arises due to their feeling of being low, uncontrolled self and various events in their life. Women suffers at least once or more in their life time. Hassle has been identified as a significant contribution to various health issues in women, including cardiovascular diseases, mental health disorders, and reproductive health issues. Therefore, it is crucial to explore effective strategies for stress relief tailored to women's unique physiological and psychological needs. Our past memories are stresses. What happen to us is like something we are behind our mind constantly. It could be a small or big thing but holding an object on hand non shop is a difficult task. This review synthesizes on variety of stress relief techniques which will be helpful to find what works best for you through experimentation and practice. Overall this review aims to provide insights into evidence based strategies for promoting women's health through effective stress management.

KEYWORD : Stress, Stagnation, Depression, Anxiety, Tension, Stress management, Strategies, Indicators and Emotions.

INTRODUCTION

Stress is a pervasive issue that significantly impacts women's health and well-being. Stress in women occurs due to various reasons like work pressures, care giving responsibilities, financial unbalances, relationship issues, societal expectations, lack of sufficient time and health issues etc. Hormonal fluctuations during menstruation, pregnancy and menopause, can also contribute to increase the stress levels.

By implementing targeted strategies for stress relief and mental wellness, women can reclaim control over their lives and give priority to their health. They are some warning signs to realize that women is under stress. It can vary from person to person, but common indicators includes changes in sleep patterns, increased irritability, difficulty in concentrating, muscle tension and changes in appetite etc.

This stress symptoms can affect the person thoughts, behavior and feelings. Stress leads to various health problems such as high blood pressure, heart disease, stroke, obesity, and diabetes. Empowering women to recognize their stressors a healthy coping mechanisms is essential for fostering resilience and promoting overall wellness.

This review synthesizes on variety of stress relief techniques like

- Benefits of early hours
- Regular workouts
- Spiritual prayer
- Journaling
- Over thinking
- Sharing is caring
- Deep breathing
- Plant your life
- Into the nature
- Changing our self- talk

- Empowering life skills
- Take a break
- Music therapy
- Healing our emotional pain
- Eat healthy
- Live one day for self
- Regular health check
- Herbal remedies and supplements
- Get some restful sleep
- Take a long drive

HOW CAN WE ELIMINATE STRESS

Women can manage stress by practicing healthy self-care strategies. Examine your negative stress signs and balance your physical, emotional, mental, occupational, social and spiritual needs. To be different in your life what do you need to do to achieve more balance or potential? Here are the techniques where the women can make lifestyle change to promote their health and relieve from stress.

BENEFITS OF EARLY HOURS - As said by Benjamin Franklin “Early to bed and early to rise makes a man healthy, wealthy and wise”. We must sleep at-least 6 to 8 hours and wake up before the sunrise. The atmosphere at morning will be very pleasant and cool with lots of magical powers to boost up our mental and physical health. It shows the impact throughout our day. Spending sometime in silence and calm, helps our mind to become sharp and focused towards our targets. We can reduce our stress by getting plenty of sleep. We must rate our tension and try to reduce it by doing some activities. Listen to sounds in nature which relaxes our mind so much. Tensions create diseases but relaxation cures diseases. This relaxation can be made of early hours.

WORKOUT REGULARLY - Give an energetic movement to your body to maintain physical fitness. Balance your weight with some workouts. Choose any physical workout like deep breathing, Meditation, Dance, Stretching, Yoga, Walking, Cycling, Swimming etc. These

workouts will reduce all your tensions. Evening exertion help you to relieve the stress. It help us to sleep the better. Exercise reduces our levels of stress hormones adrenaline and cortisol and increases our brains productions of endorphins. According to Harvard Health endorphins are the feel good neurotransmitters responsible for the feeling called runners high. This is the sense of well-being and euphoria that many people experience after exercise.

SPIRITUAL PRAYERS – Silently repeat a chant or a short prayers or phrase. This method may give you the result of touching the dimension beyond the physical means. Keep all your ideas down before the creator. Sound is essence of creations. Keep calm and listen to universe and imagine everything I your life is possible and sure it works out. What-ever work you do, carry on with chanting.

JOURNALING –Make it a routine to write every day and allow your thoughts and words to flow. A journal is a useful tool for managing your mental health and helps to reduce anxiety, tension, and depression. Feel free to freely write down your thoughts and feeling on a piece of paper or in a book to get perspective and reduce stress. Expressing yourself is also one approach to deal with any stressful situations. Take a break from screens and digital devices to give your mind rest.

OVER-THINKING –Impermanence is like the one constant in life. Everything changes, seasons change, people change even our thoughts and feelings change and nothing stays the same forever. If this is the fact and if you realize this truth you will not over think and feel anxious. Dealing with a problem is an event but healing is journey. It takes time. Calm your over thinking mind with meditation, sure you feels relaxed.

SHARING IS CARING – Being kind and compassionate to others is pro-social behavior that fosters goodwill and strengthens relationships with others. Share your thoughts with the people who can accelerate a sense of belonging and support which can energize our self and further reduce stress.

DEEP BREATHING – Regulate your breathing. when you breathe deeply to relax, it will manage your thoughts. It will also send a message to your brain telling it to quiet down and

relax. When you are stressed, your heart rate increases, your blood pressure rises, but if you breathe deep all the above will be in control and you feels relaxed.

PLANT YOUR LIFE –Concentrating on immediate tasks of gardening can reduce negative things and makes us feel better. Spending time around plants eases stress for many people and builds positive attention of our self. Gardening makes you feel peaceful and boosts our self-esteem. If you are having a problem to stay focused on a tasks, gardening can help you to concentrate more.

INTO THE NATURE –Nature helps us to recover from depression and anxiety by creating the impression that we are a small part of the vast universe. A stroll through meadows, along the beach, or just taking a peaceful stroll breaks the cycle of thoughts racing through your head.

CHANGING OUR SELF TALK –The internal monologue that arises from the inner voice’s built in biases and beliefs must always be positive, such as “I can do it if I want to do it ” or “it doesn’t matter if I make a mistake “. “By engaging in this kind of self-talk first think in the morning, you can set yourself up for success.

EMPOWERING LIFE SKILLS- One of the most important life skills that every person should possess is the ability to cook under pressure. It involves recognizing and accepting the role that stress plays in our lives, dressing accordingly, and balancing it with other demands on our time. It also involves dealing with the accompanying emotions and seeking out the most beneficial solutions.

TAKE A BREAK – Many of us think that hard work and hustle are the key to success but research indicates that taking breaks is important for our well-being and for maintaining high levels of creativity and productivity. Taking break is not a sign of laziness but enhances our ability to concentrate and focus while lowering our stress levels.

MUSIC THERAPHY –We can release the stress by relaxing our muscles and feeling better emotionally and physically when we listen to music for at least 45 minutes. Music also helps to elevate our mood and divert our attention from unfavorable thoughts, so feel free to turn up the tunes whenever you need to decompress.

HEAL YOUR EMOTIONAL PAIN –There are two things you can do when something hurts you: either you become wiser or you stay wounded. The more hurts the more you experiences in life the more wise you must become, but sadly, most people become wounded because they use trivial justifications to turn their own intelligence into hurt feelings. Human emotions and thoughts happen to all of us; don't be overly conscious of what to do or what not to do instead learn to reframe negative thoughts into more realistic or positive ones. Reducing stress frequently entails taking care of the underlying emotional suffering.

EAT HEALTHY –Certain foods and drinks may have the ability to reduce stress. Consuming food high in omega 3 fatty acids lowers our stress levels. Eating a good diet can help you feel less stressed because it provides you with important nutrients and supports brain functions and increases regulation. Dark chocolate, yogurt, seeds, nuts, oranges, leafy vegetables, and fruits fight against illness and stress.

LIVE ONE DAY FOR YOURSELF –Taking a day to focus on your self can definitely help to reduce stress. Self-care looks different for everyone so feel free to customize this plan to suit your own preferences and needs. Give priority to the activities that help you to feel relaxed, rejuvenated and balanced.

REGULAR HEALTH CHECK – Frequent checkups reduce worry and stress related to the unknown by reassuring you about your present state of health and demonstrating your proactive efforts to maintain your well-being.

HERBAL MEDICINES AND DIETARY SUPPLEMENTS – Among the herbal medicines for stress reduction are lavender, lemon balm, chamomile and passion flower. Ashwagandha is used by practitioners as a general tonic to increase energy and decrease worry and tension. It is also advantageous to lessen Alzheimer's overall. Lavender relieves anxiety and settles tense muscles. For some people, the aroma of lavender is calming.

GET SOME RESTFUL SLEEP –When you are exhausted you are less patient and more quickly upset, which can rise your stress levels. Getting enough sleep helps you to handle stress more readily. For everyone to be worry free, they need to sleep for six to eight hours per night.

TAKE A LONG DRIVE – A lengthy drive can help you relax. Take a trip into the countryside and away from stressful environments to break up with your daily routine. Don't think of it as running away from difficulties; rather, utilize the time to reconnect with yourself and discover the energy you need to overcome problems.

CONCLUSION

Women face a unique set of challenges in today's world, often leading to heightened levels of stress and anxiety. However incorporating the above stress relief techniques into our daily life can help you better to cope with the demands and challenges that come your way. Remember that stress is a common part of life but managing it effectively is crucial for our mental and physical wellbeing. By prioritizing the mental, emotional and physical health, balance and joy in all aspects of life.

Remember that even tiny, regular changes can have a significant impact on stress management and improving general quality of life. Women can empower themselves to better manage stress and enjoy happier, healthier lives.

REFERENCES

1. <https://www.webmd.com>
2. <https://www.healthline.com>
3. <https://www.heart.org>
4. <https://www.unr.edu>
5. <https://myhealth.alberta.com>
6. www.positivepsychology.com
7. <https://www.herbeasleychevy.com>
8. <http://www.helpguide.org>
9. #Zen wisdom

The Role of Human capital to attain Sustainable Economic Growth

Jayasri Puli,

Academic Head,

St. Ann's College for Women, Visakhapatnam.

E-mail : jayasrirao@gmail.com

Abstract:

Human capital is defined as the competencies, schooling, and fitness received through on-the-pastime schooling and education. Modern-day economists believe that natural resources (minerals, forests, weather, water availability, electricity resources, and so on.) play a critical position within the financial improvement of a country. A rustic wealthy in natural assets can broaden faster than a country without such resources. However, the existence of plentiful assets isn't always a sufficient circumstance to account for all aspects of economic growth. Human capital, comprising the knowledge, skills, and abilities of a workforce, plays a pivotal role in driving sustainable economic growth. The economy is created and run with the aid of people. Those people need to be capable to perform the obligations vital to create such a sustainable economic system. Within the sight of the above, this is an observation to have a take a look at human capital and its role to gain sustainable economic expansion. This have an examined positioned that there can be a robust brilliant connection within human assets and sustainable monetary growth, some other variable used are the Gross domestic investment and admissions in secondary school. This test discovered that enrollment of secondary students has immense effect on India's GDP improvement. This take a look at , concludes that to gain prolonged-term sustainable economic growth, policymakers have to maintain in thoughts allocating monetary sources to improve India's human capital, which may be executed through stepped forward spending on health care similarly to prolonged investment for education.

Keywords : Human capital, sustainable economic growth

INTRODUCTION

Modern-day economists believe that natural resources (minerals, forests, weather, water availability, electricity resources, and so on) play a critical position within the financial improvement of a country. A rustic wealthy in natural assets can broaden faster than a country without such resources. However, the existence of plentiful assets isn't always a sufficient circumstance to account for all aspects of economic growth. The economy is created and run with the aid of people. Those people need to be capable to perform the obligations vital to create such a sustainable economic system. The hassle of sustainable economic growth and recession relies upon on the dimensions of the population. This is referred to as human capital, and to truly recognize the sector, we want to apprehend the role populace performing in economic growth and decline.

Human capital is defined as the competencies, schooling, and fitness received through on-the-pastime schooling and education. As described with the aid of the Michael Pakistan Park, "The ability and expertise of people." It's also defined as the "endowment of talents to produce that exists in each man or women." Greater especially, if humans in a country are well informed, properly fed, professional and healthful, they'll be stated to have greater human capital. Of all of the elements of producing, handiest people are able to examine, adapt or change, innovate and be revolutionary. The formation or development of human capital, following Harbison (1973), may be seen as a planned and non-stop procedure of obtaining the required knowledge, abilities that are carried out to deliver monetary fee for manipulation of sustainable national development. But, the definition and measurement method remained very massive. It changed into easiest after the e-book of author Becker (1964) expressed the concept of human capital tended like thin down and its size have emerged as appropriate whilst the use of the monetary increase model.

This courtship evolved in Portugal between 1852 and 1995 and changed into additionally investigated by using Nunes (2003). The authors finish that investment in education is particularly much less pricey in high-receive as genuine with societies than in low-be given as true with societies, important to quicker educational increase inside the former nations.

Literature Review

Knack and Keefer (1997) argue that the satisfactory gaining knowledge of methods that humans acquire are better spotting and decoding perceived information, further to being higher privy to their very own movements and the outcomes of others' moves. It additionally allows human beings to participate in a society with better institutional environments, civic engagement, extra information sharing. It is considered as a platform for people's interplay, growing the leisure of lifestyles and strengthening the relationship among women and men. It is also used as an effective tool inside information and data alternatives. Within the equal

location, Human capital is all about human capacities and facts, human adaptabilities, capabilities, social relationships among humans, and the information capacities of social organizations and companies. Therefore, the improvement of human capital requires interest to different factors, consisting of social and organizational elements. This concept changed into later advanced through Gratton and Ghoshal (2003).

From our factor of view, sustainable development of economy is which maintains the well-being or is consistent with capita earnings of the population. Sustainable development as a concept has its origins in environmental troubles and, for masses observers, refers back to the protection and safety of the environment as a way to keep economic development. As encouraged with the beneficial aid of different approach that “contemporary change inside the socio-monetary form of a country and modifications in technological and institutional agency corporation of producing in addition to inside the division of the pattern of profits”.

Consequently, the manner of financial boom is an exquisite deal more big than monetary growth. Further to the growth in manufacturing, this includes an alternate within the composition of manufacturing, a higher allocation of manufacturing assets, inequality and an improvement within the favored of dwelling. Within the identical context, the idea of sustainable financial boom and improvement is gaining popularity. It has emerged as one of the crucial topics of contemporary-day-day economics

Sustainable development is criticized by the Rogers (1993) as explains imperishable expansion as “development that damage or weaken the ecological, monetary or social ground on which persisted progress is based upon”. OCED, 1990 takes considerable improvement as “a concept that makes way for further explanation to the close to partnership, inside which a very important aspect is the saga of environmental-friendly belongings which is not much faded.”

Holdren et al., (1995) furthermore said “a acceptable device or situation is one that can be continued indefinitely without modern-day reduction of valued functions internal or out of doors the device wherein the system operates or the scenario prevails”. All 3 represent the idea of sustainable monetary improvement. In the present day studies, this term appears to be a in large element subjective problem which calls for in addition efforts to recognize how the qualitative thing may additionally have an effect on monetary sustainability.

Time beyond law, the following issues associated with human capital improvement and sustainable improvement have remained unsolved in India such as choppy distribution of expert manpower, under-employment of human capital, unemployment, horrific remuneration system hindering acquisition and improvement of human capital. Those are international locations an entire lot a whole lot tons less advanced in phrases of herbal

property as compared to India. The area financial agency's research at the development of East Asia diagnosed investment in human capital as one of the critical elements in the speedy development of East Asian international locations.

Within the slight of the above, this is an observation to have a take a look at the role of experience capital to gain sustainable economic recovery.

Methodology

Hindustan is rated as "underdeveloped" or "growing" through worldwide requirements and consequently has monetary boom and improvement as its vital purpose. India's affairs can be attributed to terrible human capital improvement and utilization regulations and advent of permitting surroundings for entire and useful engagement of superior human capital. Since independence in 1947, India is applying various strategies to beautify and hold economic increase and development.

In India, human capital development receives an awful lot less interests than it should be. Investments in institutional establishments and centers have no longer had a powerful impact on the development of human capital. The trouble of this have a take a look at is the development of human capital without possibilities to utilize or discover this advanced human capital in India. This contemporary scenario is in assessment to what modified into available inside the 1970s and 1980s, at the equal time as jobs are available and anticipating graduates.

Each one-of-a-type hassle of development of human capital in India is 'thoughts drain' and development of human capital, outdoor the seashores of India. Reserve forex is spent every year by Indians for better skilled education. The difference inside the sort of professionals professional and produced and the quantity hired can be due to 'mind drain', low functionality utilization and terrible art work surroundings. The horrible results and impact of this on India's improvement is devastating to mention the least.

But the investment on instructional institutions, our government spend very less part of its budget on training.

Hypothesis Testing

1. Strong relationship between human capital and sustainable economic growth.
2. Investment on skilled population will play a huge role in sustainable economic growth.

In this portion we discussed about methodology such as style, statistics used and model of the study.

Data Collection

We have collected data from various govt. organizations and published reports of various departments. It's mostly relay on time series statistics and is secondary information that became accrued from the arena financial organization country wide money owed statistics and the OECD (countrywide accounts records files). The secondary records used for observe are anticipated the use of a couple of regression evaluation approach.

This test consists of GDP, regular with capita fitness spending, gross capital formation, and secondary scholar's enrollment. This take a look at is primarily based totally on time collection records and is definitely secondary statistics which have end up accrued from the sector monetary institution national debts records and the OECD. The secondary statistics used for gazing the couple of regression analysis technique.

The Model

Growth model of economy on which our study is focused is on the neoclassical Solow production characteristic. The neoclassical model become an up gradation of the Harrod-Domar replica of 1946, which blanketed a brand new time period: productivity increase. It predicts that in the long run, increase is most effective practicable by some improvement. For further analysis we have followed Shukla, 2017 for financial analysis. Equation which was used for our study was

$$LGDP = \alpha + \beta_0 LHEP + \beta_1 LGCF + \beta_2 LSES \dots\dots\dots$$

(1)

Equation (1) was used in our study

Table 1:

Correlation table

	LGDP	LHEP	LGCF	LSES
LGDP	1			
LHEP	0.901	1		
LGCF	0.991	0.914	1	
LSES	0.875	0.925	0.912	1

The itemization up indicates forestall give up end result of correlation assessment a few of the whole variable used inside the datasets. The end give up result suggests, as predicted,

that there's a robust interrelationship among GDP and health expenditure constant with capita (0.90), Gross capital formation (0.ninety nine), and school enrollment secondary (0.88). This means that India's GDP will grow at the identical time as in line with health expenditure consistent with capita, gross capital formation, school and secondary enrollment growth.

Table 2:

Regression strongest matches

Multiple R	0.952
R Square	0.993
Adjusted R Square	0.96
Standard Error	0.0245
Observations	20

The worth of multiple R (0.98) and R squared (0.99) may be very immoderate, indicating the statistical significance of the version. It furthermore suggests that famous expenditure on health care, gross capital formation and hard work stress described approximately ninety nine% of the variations in actual Gross domestic Product (GDP) over the observe duration in the Indian monetary machine, on the identical time because the closing 1% difference is defined with the useful resource of way of some different determinant variables outside the model. This give up end result suggests that the model used within the study fits the regression nicely.

Table 3:

Table of ANOVA

	Df	SS	MS	F	Significance f
Regression	3	6.985	1.958	1425.563	1.958*
Residual	16	0.021	0.002		
Total	19	7.124			

F-statistics of this model is 1452.563 and significance f is 1.958 which was significant at 5% level and which shows that the based variables are crucial determinants of sustainable economic growth of Indian financial system.

Table 4:

Regression coefficients

	Coefficients	Standard error	t stat	p-value
Intercept	9.652	0.635	11.254	2.452
LHEP	0.325	0.025	3.524	0.002
LGCF	0.301	0.015	4.635	2.365
LSSES	0.521	0.104	2.652	0.012

For the model, the P-value for the whole explanatory variable can be very low, which moreover shows the significance of this model. Several econometric checks are used on this take a look at to demonstrate the significance of the model. As all the econometric tests implemented on this study display a statistically large dating the numerous set up and unbiased variables from the model, this observe accepts our speculation that human capital performs a high-quality function in enhancing sustainable economic growth and improvement. We also can take delivery of the hypothesis that investment in human capital improvement will result in advanced sustainable economic growth and development.

Conclusion

This observes examines the connection among human capital and sustainable financial boom in India as on 2000 to 2020. Health related spending has grown to be taken as the data that grasps the quantitative meaning of a thing without actually measuring it for human resource. This explorative work is primarily laid on more than one linear regression fashions and neoclassical Solow manufacturing characteristic. We have a look at placed that there can be a robust exceptional dating among human capital and sustainable financial boom, some other parameters used within the Gross Capital Formation and middle school Enrollment have a look at, which additionally definitely influences India's secondary monetary increase, which modified into anticipated. This take a look at determined that secondary college registration has the finest effect on India's GDP increase. This take a look at concludes that to benefit extended-time period sustainable monetary growth, policymakers should maintain in mind allocating financial resources to enhance India's human capital, which may be done through stepped forward spending on fitness care further to prolonged investment for

schooling. India's populace may be an asset for sustainable monetary boom, not a catch 22 situation. There are areas in which future studies should be done. One place of have a glance, it could be of human wealth and financial boom in countryside and built-up India.

Future Research

Future research in human capital for sustainable economic growth can take into consideration the effect of upcoming advancements, such as artificial intelligence and automation, on skill demands in the workforce. Investigating how these technological shifts affect job profiles, the need for up-skilling, and the potential for creating new, sustainable employment opportunities can provide valuable insights. Additionally, exploring the role of lifelong learning initiatives, adaptable education systems, and flexible training programs in preparing individuals for the evolving job market will be crucial. This research should also consider the social and economic inclusivity of these advancements to ensure that human capital development contributes equitably to the sustainable growth of Para's economy.

REFERENCE

1. Domar, Evsey (1946). Capital Expansion, Rate of Growth, and Employment. *Econometrica*, 14, 137-147.
2. Becker, G. S. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education*. University of Chicago press.
3. Harbison, F. H. (1973). Human resources as the wealth of nations.
4. Rogers, A. (1993). *The earth summit: a planetary reckoning*. Global View Press.
5. Holdren, J. P., Daily, G. C., & Ehrlich, P. R. (1995). The meaning of sustainability: biogeophysical aspects. *Defining and measuring sustainability: the biogeophysical foundations*, 3-17.
6. Knack, S., & Keefer, P. (1997). Does social capital have an economic payoff? A cross-country investigation. *The Quarterly journal of economics*, 112(4), 1251-1288.
7. Gratton, L., & Ghoshal, S. (2003). Managing Personal Human Capital:: New Ethos for the 'Volunteer' Employee. *European Management Journal*, 21(1), 1-10.
8. Nunes, A. B. (2003). Government expenditure on education, economic growth and long waves: the case of Portugal. *Paedagogica historica*, 39(5), 559-581.
9. Shukla, A. (2017). The Relationship Between Corporate Social Responsibility and Financial Performance of Indian Banks. *IUP Journal of Corporate Governance*, 16(2).

**Studies on bird diversity at Campus of St. Ann's college for women, Malkapuram,
Visakhapatnam, A.P, India.**

Prasanthi Cheekurumelli

Associate Professor, Department of Microbiology,
St. Ann's Degree College for Women, Malkapuram, Visakhapatnam.

Mail Id: :prashanthigudala20@gmail.com

Abstract:

Birds are gradually declining around the world day by day. The case study we have attempted to document the bird diversity around our college premises, St. Ann's college for women, Malkapuram, Visakhapatnam, India. we have used binoculars for clear view and also participant observation to gather. Greenery around the campus is being some out attractive to birds for their residence. 14 species of birds were recorded from this location with a duration of 5 Hours. We found that these bird species attain conservation values.. Of these, 10 were resident, 4 were local migrants. But these birds decreasing in their count due to anthropogenic activities, climatic and ecological factors. The present study was to know how threats and habitat loss that declining bird diversity.

Keywords : Birds, Species, Diversity, St. Ann's and Visakhapatnam

INTRODUCTION

Birdwatchers across the world have a value of recording birds present in the registered area. These observations were uploaded to e-Bird through the protocols basic unit of a checklist. This checklist gives the information about the existing birds. I Studies indicate that, of the 1358 species [2]found in the Indian subcontinent, about 229 are migrants that include both terrestrial and water birds[1].Information on the protocol can be seen on the e-Bird help pages. Indian Birdwatchers in India began to use e-Bird in a concerted manner which is useful for the platform to share the information .

MATERIALS AND METHODS:

This article focuses on present status of counting birds at St. Ann's campus, Malkapuram, Visakhapatnam. Our campus all together 6276581 acres with about 180 trees around it. This make the location beautiful with the bird diversity. We used binoculars to observe the birds which are far away to see. **Fig: 3.** Bird count supports listing and monitoring of birds from individuals maintaining their bird list, to group of students. we encourage birders to use the free record-keeping tools provided by e-Bird. We registered our campus hotspot for e-Bird 2022 to upload the observed birds in the campus **Fig:1.** We started our program in the morning from the start point of the campus**Fig:2.**

RESULTS:

The present study reports the results of ornithological surveys conducted at St. Ann's campus and in the states of Andhra Pradesh. We observed about 14 species of birds which are belonging to different families. Of these, 10 were resident, 4 were local migrants. The observed birds was given in the **Table 1.** We also involved in uploading the lists of bird with our campus hotspot through e-Bird app. Checklist of uploaded bird list was show in the e-Bird website **Fig:4**

DISCUSSION:

Counting is central to ecological studies and conservation research in ornithology[3]. By this we came to know how many species of birds and also their diversity in our campus. We also noticed the effect of anthropogenic activities to decline their number day by day. Proper awareness should be given to people to maintain the diversity of birds in our livelihood for better natural

environment. In community studies involving bird-counts, the absence of serious attempts to standardize ‘efforts’ by developing species–incidence curves is a serious drawback.[3]

REFERENCE:

1. Majumder, A., Maheswaran, G., Alam, I., Chandra, K., Alfred, J.R.B. and Chowdhury, B.R. 2022. Birds of India 1-600. Zoological Survey of India
2. Praveen, J., and Jayapal, R., 2023. Checklist of the birds of India (v7.1).<http://www.indianbirds.in/india/>
3. Urfi, Abdul & Sen, Monalisa &Kalam, Abdul &Meganathan, T. (2005). Counting birds in India: Methodologies and trends. Current Science. 89.

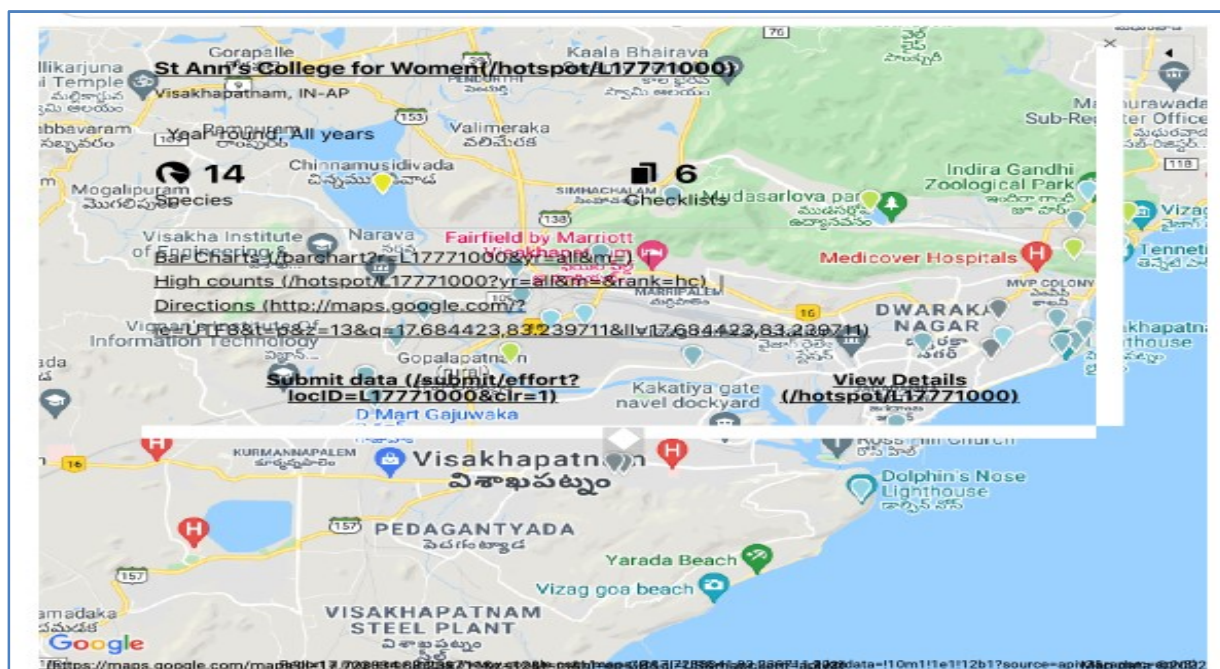




Fig:1 Google map showing the registered Hotspot




Fig:2 Start point of the Campus



Fig:3 Observing the birds using Binoculars

<i>BIRDS</i>	<i>COMMON NAME</i>	<i>SCIENTIFIC NAME</i>	<i>ABOUT IT</i>
	ROCK PIGEON (FERAL PIGEON)	<i>Columba Sivia</i>	<i>PIGEONS ARE ATTRACTED TO OPEN AREAS WHERE THEY CAN FIND FOOD ON THE GROUND.</i>
	CATTLE EGRET	<i>Bubulcus ibis</i>	<i>CATTLE EGRET IS A POPULAR BIRD WITH CATTLE RANCHERS FOR ITS PRECEIVED ROLE AS BIOCONTROL OF CATTLE PARASITES SUCH AS TICKS AND FILES.</i>

	<p>INDIAN POND HERON</p>	<p><i>Ardeolagrari</i></p>	<p><i>THE INDIAN POND HERON OR PADDYBIRD IS A SMALL HERON. IT IS OF OLDWORLD ORIGINS.</i></p>
	<p>ROSE RINGED PARAKEET</p>	<p><i>Psittaculakrameri</i></p>	<p><i>ROSE RINGED PARAKEET IS CONSIDERED ONE OF THE BEST TALKING PARROTS AND CAN LEARN A VOCABULORY OF UP TO 250 WORDS</i></p>
	<p>PURPLE RUMPED SUNBIRD</p>	<p><i>Leptocomazeylonica</i></p>	<p><i>SUNBIRDS ARE BRIGHTLY COLORED BIRDS, WITH VARIOUS COMBINATION OFGREEN, PURPLE, BLUE, RED AND YELLOW FEATHERS. SUNBIRDS ARE DIURNAL BIRDS (ACTIVE DURING THE DAY)</i></p>
	<p>ASIAN KOEL</p>	<p><i>Eudynamysscolopascus</i></p>	<p><i>ASIAN KOEL MAKES SOUND OF KOOOO-KOOOO IS ACTUALLY A MATING CALL, AND A DESPERATE ONE.</i></p>



**WHITE
THROATED
KINGFISHER**

Halcyon smyrnensis

THE WHITE THROATED KINGFISHER IS ELECTRIC BLUISH-GREEN TINGED BACK AND UPPER WINGS.IT IS HAS WHITE THROAT EXTENDING ACROSS THE BREAST.



BLACK KITE

Milvus migrans

BLACK KITES HAVE BLACK TALONS AND PALE YELLOW LEGS.THEIR SHARP TALONS ARE VERY EFFECTIVE FOR CATCHING AND HOLDING PREY.



**COMMON
TAILOR BIRD**

Orthotomus sutorius

TAILOR BIRD GETS ITS NAME FROM THE WAY IN WHICH IT BUILDS ITS NEST BY STITCHING LEAVES TOGETHER.



SHIKRA

Accipiter badius

THE SHIKRA HAVE GREAT COURAGE, COUPLED WITH INTELLECT AS A HUNTER, MAKING IT ONE OF THE EASIEST TO TRAIN AND TAME.




	INDIAN GOLDEN ORIOLE	<i>Orioluskundoo</i>	INDIAN GOLDEN ORIOLES ARE SMALL SHY SUNBIRDS. MALES ARE GOLDEN YELLOW I COLOUR.FEMALES ARE ALMOST GREENISH WITH A YELLOWISH-WHITE BELLY.
	BLACK DRONGO	<i>Dicrurusmacrocerus</i>	BLACK DRONGO IS GLOSSY WITH A WIDE FORK TO THE TAIL.THE SEXES CANNOT BE TOLD APART IN THE FIELD.
	HOUSE CROW	<i>Corvussplendens</i>	CROWS ARE EXTREMELY INTELLIGENT BIRDS. THEY ARE KNOWN FOR THEIR PROBLEM-SOLVING SKILL AND AMAZING COMMUNICATION SKILLS.

Table:1-BIRDS WE WATCH IN THE CAMPUS

Source: Google pictures, captured pictures in the campus and Google maps

23/05/2022, 11:35

Checklist for St. Ann's College for Women

eBird Field Checklist

St. Ann's College for Women

Visakhapatnam, Andhra Pradesh, IN

ebird.org/hotspot/L17783558

14 species - Year-round, All years

Date: _____

Start time: _____

Duration: _____

Distance: _____

Party size: _____

Notes: _____

This checklist is generated with data from eBird (ebird.org), a global database of bird sightings from birders like you. If you enjoy this checklist, please consider contributing your sightings to eBird. It is 100% free to take part, and your observations will help support birders, researchers, and conservationists worldwide.

Go to ebird.org to learn more!

Pigeons and Doves

___ Rock Pigeon

Cuckoos

___ Asian Koel

Herons, Ibis, and Allies

___ Cattle Egret

___ Indian Pond-Heron

Vultures, Hawks, and Allies

___ Shikra

___ Black Kite

Kingfishers

___ White-throated Kingfisher

Parrots, Parakeets, and Allies

___ Rose-ringed Parakeet

Old World Orioles

___ Indian Golden Oriole

Drongos

___ Black Drongo

Jays, Magpies, Crows, and Ravens

___ House Crow

Cisticolas and Allies

___ Common Tailorbird

Starlings and Mynas

___ Common Myna

Sunbirds and Spiderhunters

___ Purple-rumped Sunbird

Fig:4 Pdf showing the list of Birds uploaded in e-Bird website

Speaking English as English

Roja. Akkaraboyina

HOD , English

St. Ann's College for Women, Malkapuram, Visakhapatnam.

Research Scholar, Kalinga University, Naya Raipur, Chhattisgarh

E-mail : rojakrishna8@yahoo.in

Abstract

The English language is used globally as a medium of communication by those who do not share the same native language, according to the survey conducted by Braj Kachru in 1985. nearly 38 crores people considered English as a primary language and, around 26 crores people considered it as a second language. Globally, many people find it difficult to pronounce non-native languages correctly owing to their various linguistic backgrounds. Very few people can master this in a short period.

The English spoken by these non-native people is dominated by their native language, which creates differences in spoken English. Each language has a different accent, and many people often mix that native accent with English, which creates misunderstanding and confusion during communication. The lack of appropriate teaching aids and resources is the primary reason for this. Almost 80% of the population does not know the phonetics of daily used words and ends up using the wrong pronunciation. Hence, to be intelligible, there is a need to gain an understanding of the basics of phonetics. In this context, this paper discusses and proposes various aspects of learning the right pronunciation and the crucial part of the facilitator in this regard.

Key Words : English language, pronunciation, spoken English, language skills, learner inspiration, intonation, coordinator, intelligibility.

INTRODUCTION

In this ever-condensing world of communication, there is a need for intelligibility which is the key aspect of spoken English to avoid miscommunication and transit smooth flow of information. Intelligibility is considered a tool to measure how comprehensible a person's speech is in the given conditions. At this point, it is necessary to take a glance at the language skills, especially the spoken skills. There are four segments of Language skill: Reading, Writing, Listening and Speaking where, Reading and Writing are observed to be easier to learn, as opposed to Speaking, owing to a variety of reasons that impact the 'right' way of speech. To explicate a little further, written English is more formal than spoken English; there is no relation between sound and letters. For example, the word knife has a 'k' in it, but pronouncing the k does not come into the picture as it is a silent letter. This is why sometimes English is referred to as an irrational language. There are many such words where some letters are retained though they are not pronounced.

It is useful to understand the factors that impact the speaking skills of non-native English speakers. One of the major factors that affect speaking skills is the fact that pronunciation of English varies across different geographical areas with numerous accents, like American, Australian, Indian, and such. In India itself there are hundreds of local languages spoken and each language has its accent which dominates the non-native language English creating an illusion of some other new language being spoken. We just cannot idealize a particular model of English, especially in a place like India. In South Asia, English is just a medium for general communication purposes, so one has adapted the pronunciation accordingly. Also, the tone of the voice or the melody of the speech is differ subsequently between languages, and so it is essential for the language way of using the tone. For example, considering the simple word "sorry" one can speak in two different ways, from a higher note to a lower and from a lower note to a higher. In the first case, it shows the right feeling for an apology, and in the second case, it shows just a casual tone. So, here, two different voice tones bring two different attitudes, the wrong usage may sometimes lead to miscommunication.

Listening and its Importance in Pronunciation:

One of the simple methods to learn fundamental communication is by listening. Listening skills are essential as it is impossible to learn any language without listening to it first. Listening is critical, and it is first of the four skills in communication or language learning that initiates the path for the other three skills - speaking, reading, and writing. It is only after repeatedly listening to the sounds one can start speaking. Listening skill awakens the language awareness as it stands primary skill of all the

four skills listening accounts for 50% of our communication time. It is purposeful and focused rather than accidental; it requires motivation and effort. The intonation, stress, sound and rhythm of the language can be understood and adopted only through proper listening.

Listening skill plays a vital role in speaking though it is usually neglected by non-native speakers. Finally, the result is that let alone mastering the language, many are struggling to be able to use proper pronunciation. Listening comprehension helps to recognize the sounds in the speech and allows to learn and utter them beautifully. In order to achieve this, there is a need to listen more to the native speakers to access the way to pronounce correctly. There are lots of ways to improve pronunciation: listening to native speakers on different platforms like radio, television, conferences, and seminars. Watching interviews, animated broadcast learning, and listening to audio books can give a better comprehension and perfect practice and improve the accuracy of pronunciation as well as speaking ability. With this exposure to language, if one can compare his/her spoken records with the original ones, there are better chances of pronunciation proficiency. Ultimately, if a learner desires to master spoken English on par with native speakers, speaking English as English is vital.

Phonetics and its Play in Pronunciation:

Just by listening to the speaker, we can assume their linguistic roots, whether they are British or American or from another place. That is the role played by pronunciation which is governed by phonetics. To trace back the roots of phonetics in India, the first phonetic study was done during the 6th century BCE by a Hindu scholar Pāṇini where he highlights the articulatory description of voicing, though the work mainly concerns the correlation between vernacular languages spoken and written in Vedic texts.

Phonetics is a major branch of linguistics that focuses the categorization and production of speech sounds. Every language has its own phonetics, and some languages like Arabic and Spanish have only one style of pronunciation which renders them easy to learn the right way. Whereas English could be difficult with a lot of discrepancies between spelling and pronunciation. Phonetics deals with two major skills - speaking and listening. How the speaker produces the sound, and how he pronounces it comes under speaking skills, and how the audience understands the accent spoken by the speaker requires proper listening skills. Also, how they produce different types of sounds, with different organs like tongue, throat, lips, etc.

Phonetics has symbolic letters for each alphabet present in English and these are used by phonologists to understand the exact pronunciation of the word. With these phonetic symbols, one can know the way to correct pronunciation. The International Phonetic Association gives the IPA-International Phonetic Alphabet, which is used to represent the correct pronunciation of a word. For instance, the phonetic transcription of the word 'phonetics' is **fə'netiks**.

The English alphabet has 26 letters, and 44 phonetic symbols depict the sounds of the alphabet letters according to their usage. The 44 phonetical sounds help to discriminate words or meanings from one word to another. Numerous letters and combination of letters are considered graphemes that represent the sounds, and a phoneme is a set of sounds that differentiates word to word in a particular language.

The following is a listing of the two categories of English phonetics: Consonants and Vowels.

Consonants :

Consonants contribute more to making English understandable than vowels do as they are more in number. Native English speakers from different dialects have distinct accents, and the differences exist because of different sounds of vowels whereas Consonants are pronounced similarly around the globe. So, when learning phonetics, one must concentrate more on consonants than vowels, because though one is imperfect in vowel sounds the audience would understand.

There are five types of consonant sounds based on the way a sound is produced:

- Friction consonants
- Stop Consonants
- Nasal Consonants
- Lateral Consonants
- Gliding Consonants

Friction Consonants:

Phoneme	IPA symbol	Graphemes	Examples
1	F	f, ff, ph, gh, lf, ft	fall, staff, physics, tough, calf, often
2	H	h, wh	hope, whom
3	S	s, ss, c, sc, ps, st, ce, se	sink, lest, circus, since, psychology, listen, peace,
4	V	v, f, ph, ve	van, off, nephew, give
5	Z	z, zz, s, ss, x, ze, se	zip, buzz, is, scissors, xylophone, craze

6	ʒ	s, si, z	treasure, division, azure
7	ʃ	sh, ce, s, ci, si, ch, sci, ti,	shape, ocean, sugar, facial, mention, machine, mission, conscious, ration
8	θ	th	think, thick
9	ð	th	father, this

Stop Consonants:

Usually, these are represented in pairs.

IPA symbol	Graphemes	Examples
P	p, pp	pin, puppy
B	b, bb	bug, cabbage
T	t, tt, th, ed	tip, matter, Thomas, ripped
D	d, dd, ed	Dad, add, milled
K	k, c, ch, cc, lk, qu,q(u), ck, x	kite, catch, chemical, occur, walk, biqetquill, black, ox
G	g, gg, gh, gu, gue	gate, egg, ghee, guest, prologue
tʃ	ch, tch, tu, ti, te	chess, catch, nature, question, righteous
dʒ	j, ge, g, dge, di, gg	jewel, genius, gadget, pledge, soldier, exaggerate

Some other usages of consonant sounds are usages of sequences. There are many cases where more than two consonants follow one after another which is known as consonant sequence. As per these sequences, they are categorized into Initial and Final Sequences.

Example: *Scream*- *skri:m* (Initial Sequence) *Eight*- *eɪt*(Final Sequence)

Nasal Consonants:

IPA symbol	Graphemes	Examples
M	m, mm, mb, mn, lm	many, summary, tomb, autumn, calm
N	n, nn, kn, gn, pn	nine, annual, knock, gnash, pneuma
ŋ	ng, n, ngue	English, ring, sink, tongue

Lateral consonants:

IPA symbol	Graphemes	Examples
L	l, ll	light, sell

Gliding consonants:

IPA symbol	Graphemes	Examples
r	r, rr, wr, rh	rat, parrot, write, rhythm
w	w, wh, u, o	with, when, quiet, choir
j	y, i, j	you, opinion, hallelujah

Vowels :

Different slang and accents in the English language are raised due to the difference in pronunciation of Vowels. Vowels are pronounced by the voiced air passing through mouth articulators that are with different movements of lips and tongue. The only way to get perfection

in vowels is by listening and imitating the words spelled by the professionals.

Vowel sounds are categorized into three types:

- Short vowels
- Long vowels
- Diphthongs

Short Vowels :

Phoneme	IPA symbol	Graphemes	Examples
1	E	e, ea, u, ie, ai, a, eo, ei, ae	end, thread, hurry, friend, said, many, leopard, heifer, aesthetic
2	ɪ	i, e, o, u, ui, y, ie	it, England, women, busy, guild, gym, sieve
3	ɒ	a, ho, au, aw, ough	swan, honest, maul, slaw, fought
4	ʊ	o, oo, u, ou	wolf, took, push, could
5	ʌ	u, o, oo, ou	lug, month, blood, double
6	ə	a, er, i, ar, our, ur	about, ladder, pencil, dollar, honor, augur
7	æ	a, ai, au	cat, plaid, augh

Long vowels:

Phoneme	IPA symbol	Graphemes	Examples
1	ɑ:	a	Arm, father
2	i:	e, ee, ea, y, ey, oe, ie, i, ei, eo, ay	be, see, neat, many, key, phoenix, brief, receive, people, quay
3	u:	o, oo, ew, ue, u_e, oe, ough, ui, ou	whom, soon, few, flue, flute, shoe, throughout, juice, group
4	ɜ:ɹ	ir, er, ur, ear, or,	girl, learn, turn, pearl, sword, journey,

		our, ir	birth
5	ɔ:	aw, a, or, oor, ore, oar, our, augh, ar, ough, au	paw, ball, fork, poor, fore, board, four, taught, war, bought, sauce

Diphthongs:

A combination of two vowel sounds in a single syllable,

Phoneme	IPA symbol	Graphemes	Examples
1	eɪ	a, ai, eigh, aigh, ay, er, et, ei, au, ea, ey	way, mail, weight, straight, pay, gauge, gate, deal, grey
2	aɪ	i, y, igh, ie, uy, ye, ai, is, eigh, i_e	hider, fly, light, lie, buy, style, aisle, bison, eight, site
3	ɔɪ	oi, oy, uoy	oil, join, toy, buoy
4	eə ^r	air, are, ear, ere, eir, ayer	chair, dare, pear, where, their, prayer
5	ɪə ^r	ear, eer, ere, ier	year, sneer, sphere, pier
6	ʊə ^r	ure, our	pure, flouriest
7	oʊ	o, oa, o_e, oe, ow, ough, eau,	own, boat, lone, toe, bow, though, bateau
8	aʊ	ow, ou, ough	how, about, plough

Intonation and its Magic in Spoken English :

Language has unique music and melody, and it is not the same all the time. Intonation is how a speaker communicates the meaning through tone and voice. The voice rises and falls, and the difference in the notes of the voice make tones. The meanings of the words do not switch, but the tone

used furthered the intention or the emotion of the speaker. Thus, the way of using tone is called intonation.

Understanding intonations is essential to understanding the deeper meaning behind the words of the speaker. Many pieces of research have proved that tone and pitch of voice play a pivotal role in conveying more meaning than the words used by the emotions and shades of the speaker. Intonations are important in spoken English as they convey meaning in many ways. Changing the pitch of voice makes it high or low allows to provide additional information to the listener and performs various linguistic functions.

For example, 'Thank you' may be said in two ways:

Gratitude: voice starts high and ends low

Casual acknowledgment: Starts low and ends high

The pitch varies :

The rising up and falling down of pitch gives different tones to language, and these tones determine the meaning that is employed with each utterance.

High Fall: pitch falls from high to low

Eg: This time the performance was really remarkable.

Low Fall: pitch falls from mid to low

Eg: That's amazing

High Rise: pitch rises from low to high

Eg: Raj enjoys trekking, hiking and biking.

Low Rise: pitch rises from mid to high

Eg: Good to meet you.

Fall Rise: pitch falls to low and then rises again

Eg: I don't encourage any of you at this moment.

Rise Fall: pitch rises from low and again falls

Eg: We are going to France, England and after to America.

A good method to improve pronunciation is to listen to dialogues and repeat them with the same stress and intonation without deviating from the original sound/phoneme as the speaker pronounced.

How can a learner overcome the Barriers of speaking English???

The acquisition of an acceptable pronunciation, of the foreign language, is going to be a difficult and time-consuming affair. The learner of a foreign language would do well to realize the difficulties

involved and to learn the sounds of the foreign language carefully and thoroughly. The exposure a person gets to a foreign language is usually less compared to the exposure received to the mother tongue.

The following are a few suggestions for honing pronunciation:

A teacher's role is quite essential in a process-oriented classroom. He/she assumes a more supportive and positive environment and facilitates a variety of strategies rather than controlling in a rigid classroom to improve listening skills. Giving instructions, and providing instruments to increase knowledge and also for better comprehension of phonetics, phonetical transcription, sound discrimination, facilitating language lab to enhance the language skill. In this context, the learner should be an active participant in adopting the various strategies and skills. Effective discussion with classmates also helps to develop pronunciation. Should avoid the habit of swapping the phoneme of the mother tongue by continuing practice of correct sound/phonemes under the guidance of an efficient language teacher or by carefully listening to sounds and longer utterances from the standard sound. Regular usage of equipped language labs increases the scope of developing listening skills, articular skills as well as speaking skills.

Developing the knowledge of phonetics through regular practice of word pronunciation dictionaries, and following good pronunciation books to familiarize oneself with the pronunciation is crucial. Proper practice of articular movement by using audio-visual-based software which provides a display of articular movement while producing sound helps for better practice of articular. By reading the maximum number of books, focusing and observing the rich voice modulation, and practicing the intonations give music and melody to the speech. Watching English news channels like BBC, CNN, Star World, NDTV, etc. helps to improve language in the race of following the reader and also improves Listening skills which caters to using the right way of pronunciation and helps to develop fluency in English.

Conclusion:

Intelligibility is regarded as among the major features while assessing the language skills of an individual and considered as the fundamental understanding of individual communication ability. To develop and harnessing the power of language be language application will unlock the effective communication skills and empowers individual to be proficient in language. It is remarked that most non-native speakers have problems using correct pronunciation due to various reasons, the major among them is the influence of the mother tongue and its accent in communication English. The dissimilarities between the mother tongue and the English cause many difficulties in becoming proficient in the English language. Since language is a skill attention should be given by facilitators while transmitting a dynamic language learning eco system where individual can develop and refine their linguistic skills for real-world success.

REFERENCE

1. Anthony Edward M. 'Approach, Method, and Technique' *English Learning*. University of Michigan Press. 1963. pp 63-67.
2. Richard W Schmidt, Jack C Richards and Schmidt, Richards. *Longman Dictionary of Language Teaching and Applied Linguistics*, Longman publishers, 1985 p. 57.
3. Lei, Q. *EFL teachers-factors and students affected*. US-China Education Review, 4(3), 2007. pp.60- 67.
4. SusmithaShyamsundar, The Role of Teaching - Learning English Pronunciation; the Case of Education Colleges in Coimbatore, IOSR Journal of Humanities and Social Science (IOSR-JHSS) Vol.19, Issue 9, Ver.IV, pp75 - 77, Sep. 2014.
5. D. Renukadevi, The Role of Listening in Language Acquisition; the Challenges & Strategies in Teaching Listening, International Journal of Education and Information Studies, Vol. 4, No 1 pp .59 - 63, 2014.
6. Mohammad SabeerKhaghaninejad, The Effect of Explicit Pronunciation Instruction on Listening Comprehension: Evidence from Iranian English Learners. Theory and Practice in Language Studies, Vol. 5, No. 6, pp. 1249 - 1256, June 2015.
7. Pondra, Rajender. *English teaching in India: A Review*, Paripex Indian Journal of Research Vol 5, Issue 2, 2016. p. 23.
8. .Daniel Jones, English Pronunciation Dictionary, 15th Edition Cambridge University Press U.K.
9. O 'Connor. J.D, Better English Pronunciation, (with two audio CDs), Second Edition Replica Press Pvt. Ltd India.
10. T.C. Joseph & R.G. Munghate, SGM College, Kunkheda, Role of Proper English Pronunciation in Projecting a Better Personality.
11. WWW.languageinindia.com
12. oms.bdu.ac.in
13. es.scribd.com

**Invitro activity of certain drugs in combination with plant extracts against *Staphylococcus aureus*,
Klebsiella pneumonia and *Epidermophyton floccosum***

B. Sudha Rani

Asst. Professor, Department of Botany
St. Ann's College for Women, Malkapuram, Visakhapatnam.
E-mail : bsudharani14@gmail.com

Abstract:

This is a study conducted to assess the interconnection between the methanolic draw out of *Lawsonia inermis* (leaf) and *Psidium guajava* (leaf) in combination with antimicrobial drugs including Ciprofloxacin and Amoxicillin against different microorganisms i.e. *Staphylococcus aureus*, *Klebsiella pneumonia*, and *Epidermophyton floccosum*. The well diffusion method is used to assess the interaction between methanolic extracts and antimicrobial agents. The experiment showed that methanolic extracts help increase the inhibition zones of Ciprofloxacin and Amoxicillin against the microbial strains taken.

This study evaluates the inhibition zones and also concludes the synergistic activity of antimicrobial drugs combined with plant extracts which may show a possible way to treat infections caused by *S. aureus*, *K. pneumonia*, and *E. floccosum*.

KEYWORDS : Methanol Extracts, Synergism, Ciprofloxacin, Amoxicillin, *Staphylococcus Aureus*, *Klebsiella pneumonia*, *Epidermophyton floccosum*.

INTRODUCTION

World's population sees deaths due to infections every single day. Infections are caused by many known and unknown pathogens invading human systems which may cause symptoms, pain and ultimately death. Although several drugs have been developed by pharmaceutical companies in past years, opposition to these drugs by bacteria has gone up over time which is now a major concern. ^[1]

Microbial refusal to accept to classical antibiotics and their fast increment has brought up serious thinking in the cure of spreading diseases. Microbial spread are the reason for so many deaths each year worldwide. The happening of the advancement of resistance is responsible for the available antibacterial drugs to becoming less powerful or even ineffective. To get control of the resistance of prescription, many strategies have been suggested; one of them includes a mix of other molecules with imperfect antibiotics which restores the beneficial antibacterial activity. ^[2]

Plants are widely known for their therapeutic properties and from centuries of being used in the field of medicine can play a key role in eradicating such clinical infections. Plant extracts have been used in many experiments for such desirable results as they contain many phytochemical compounds which may add strength in resistance against the microorganisms.

In fact, bacteria have the genetic power to pass on and have resistance to drugs used as therapeutic representative. *S.aureus* (Gram-positive bacterium) and *K.pneumonia* (Gram-negative bacterium) are recognized as the foremost reason of infections in people happening in both the community and hospitals. *S.aureus* and *K.pneumonia* are responsible for common respiratory infections while *E.floccosum* is a filamentous fungus that is responsible for skin-related infections.

Drug synergism in the middle of studied antimicrobial agents and bioactive plant extracts is a great concept that has been used widely now. ^[3] This study was carried out to synthesize methanolic extract using *Lawsonia inermis* and *Psidium guajava* were analyzed for their antibacterial activity along with antimicrobial agents against pathogenic bacteria in laboratory conditions.

Synergism is a new concept in developing agents for antimicrobial activity. The new

approach is a therapy or mix of synergistic therapy in opposition to resistance microorganisms which make way to new ways of handling infectious diseases.^[4]

In present study, we reported the inhibition zones and synergistic work of the methanolic extracts of *Lawsonia inermis* (leaf) and *Psidium guajava* (leaf) in combination with antimicrobial drugs including Ciprofloxacin and Amoxicillin against different microorganisms i.e. *Staphylococcus aureus*, *Klebsiella pneumonia* and *Epidermophyton floccosum*.



***Lawsonia inermis* (L.)**



***Psidium guajava* (L.)**

Methods and Materials

PLANT MATERIAL:

Dried leaves of *Lawsonia inermis* and *Psidium guajava* are gathered from the neighbourhood of Visakhapatnam, Andhra Pradesh, India. The plant bits were rinsed and air-dried at room temperature.

PLANT EXTRACT PREPARATION:

The put together plant materials are cut into small pieces, shade dried and powdered in a Willy mill. This material was put to weigh measure and extracted with Methanol along with a soxhlet extractor for 5-6 hours at a temperature not going beyond the boiling point that the solvent possess. For every 100 grams of dry material, 2 litres of solvent were used. The taken out solvents were concentrated under reduced pressure with a rotary evaporator. The residue received was considered as crude extracts and kept in a freezer until assayed. 1g of each extract was taken and dissolved in 1ml of Dimethylsulphoxide (DMSO). Thus 500, 250 and 125mg/ml of stock were obtained as a standard concentration of extracts.

BACTERIAL STRAINS:

Three mother cultures of *S.aureus*, *K.pneumonia* and *E.floccosum* obtained from Adhya Bioscience laboratories are used to evaluate the increase in inhibition zones and show the synergistic effect between plant extracts and antimicrobial drugs against the respective infections.

ANTIMICROBIAL DRUGS:

Two drugs are used for the evaluation studies which include Ciprofloxacin and Amoxicillin. Desired concentrations of antibiotic drugs were prepared using water as a solvent for ciprofloxacin and amoxicillin solutions.

ANTIMICROBIAL TESTS:

Well-diffusion method is used to measure the antibacterial activity in the experiment. Three Petri plates containing 20ml of Nutrient agar media were inoculated with a 24-hour culture of Bacterial strains. 4 wells of 6mm diameter each were punched in the Petri plates containing nutrient agar media. 3 wells in each plate were filled with 125mg/ml, 250mg/ml and 500mg/ml standard

concentrations of extracts/antibiotic or combination respectively and 4th well is filled with 30µl of either which is considered as a control. The Petri plates were incubated at 37°C for 24 hours. Assessment of antibacterial activity is done by measuring the bacterial inhibition zones around the well with a zone scale. The average of three replicates for each extract, antibiotic and combination was assayed.

Results and Discussion

Different mechanisms of antimicrobial drugs are seen in this experiment. Some notable synergistic interactions (Amoxicillin with *L.inermis* and *P.guajava* against *S.aureus*, *K.pneumonia* and *E.floccosum*) and antagonistic interactions (Ciprofloxacin with *L.inermis* and *P.guajava* against *S.aureus* and *E.floccosum*) were identified.

While Ciprofloxacin showed no effect against *K.pneumonia* when combined with plant extracts. The data represented below show the potential effect of antimicrobial drugs in combination with plant extracts used against *S.aureus*, *K.pneumonia* and *E.floccosum*. [Table 1, 2, 3]

TABLE 1 - INHIBITION EFFECT AGAINST *Staphylococcus aureus*

DRUG TARGET	DRUG	<i>Psidium guajava</i>	<i>Lawsonia inermis</i>	SYNERGISM RATE [EXTRACT/DRUG]	MEAN
Nucleic acid synthesis inhibitor	Ciprofloxacin	A	A	0	0
Cell Wall Biosynthesis inhibitor	Amoxicillin	S	S	2	2
TOTAL	2	1	1	-	-

(A)– Antagonism; (S) – Synergism; (No change)

TABLE 2 - INHIBITION EFFECT AGAINST *Klebsiella pneumonia*

DRUG TARGET	DRUG	<i>Psidium guajava</i>	<i>Lawsonia inermis</i>	SYNERGISM RATE [EXTRACT/DRUG]	MEAN
Nucleic acid synthesis inhibitor	Ciprofloxacin	No change	No change	-	-
Cell Wall Biosynthesis inhibitor	Amoxicillin	S	S	2	2
TOTAL	2	1	1	-	-

(A) – Antagonism; (S) – Synergism; (No change)

TABLE 3 - INHIBITION EFFECT AGAINST *Epidermophyton floccosum*

DRUG TARGET	DRUG	<i>Psidium guajava</i>	<i>Lawsonia inermis</i>	SYNERGISM RATE [EXTRACT/DRUG]	MEAN
Nucleic acid synthesis inhibitor	Ciprofloxacin	A	A	0	0
Cell Wall Biosynthesis inhibitor	Amoxicillin	S	S	2	2
TOTAL	2	1	1	-	-

(A) – Antagonism; (S) – Synergism; (No change)

Respective inhibition zones assayed in this experiment are mentioned following the plant extracts taken [Table 4, 5, 6]. Assay of Inhibition is done by taking zero as negative control and positive control for a respective antibiotic used against the respective microorganism varied.

TABLE 4 – INHIBITION ZONES OF *P.guajava*

<u>Psidium guajava</u> (Leaf)								
MICROBIAL STRAIN	Ciprofloxacin + Plant extract(mg/ml)			Ciprofloxacin (control) (30µl)	Amoxicillin + Plant extract(mg/ml)			Amoxicillin (control) (30µl)
	125mg/ ml (30µl)	250mg/ml (30µl)	500mg/ml (30µl)		125mg/ml (30µl)	250mg/ml (30µl)	500mg/ml (30µl)	
<i>S.aureus</i>	19 mm	20mm	20mm	28mm	15mm	15mm	16mm	11mm
<i>K.pneumonia</i>	37 mm	37mm	40mm	40mm	18mm	20mm	21mm	16mm
<i>E.floccosum</i>	33 mm	31mm	28mm	40mm	16mm	18mm	22mm	19mm

TABLE 5 – INHIBITION ZONES OF *L.inermis*

<u>Lawsonia inermis</u> (Leaf)								
MICROBIAL STRAIN	Ciprofloxacin + Plant extract(mg/ml)			Ciprofloxacin (control) (30µl)	Amoxicillin + Plant extract(mg/ml)			Amoxicillin (control) (30µl)
	125mg/ml (30µl)	250mg/ml (30µl)	500mg/ml (30µl)		125mg/ml (30µl)	250mg/ml (30µl)	500mg/ml (30µl)	
<i>S.aureus</i>	21mm	23mm	26mm	28mm	10mm	11mm	11mm	11mm
<i>K.pneumonia</i>	35mm	39mm	40mm	40mm	17mm	20mm	24mm	18mm
<i>E.floccosum</i>	30mm	31mm	33mm	40mm	16mm	17mm	22mm	21mm

It is recognized that *S.aureus* is one of the leading causes of infections that occur in both the community and the hospital. As with many nosocomial pathogens, Multidrug-resistant Staphylococci are extremely difficult to treat because they are resistant to almost all antibiotics clinically available right now and also can cause meningitis. ^[5] A new approach to solving the bacterial resistance problem depends on the ability of plant extracts to act synergistically with antibiotics. ^[5] In this study, reference and environmental strains of pathogenic organisms were used to examine drug resistance in clinical settings often associated with these organisms. To determine the effects of combinations with antibiotics, extracts of plants are used. ^[6]

The therapeutic potential of leaf extracts from *L.inermis* and *P.guajava* has demonstrated the strong synergy between crude methanolic extract of the leaves and first-line antibiotics resulting in clinically useful applications against respective microbial strains. ^[5, 6] Bacterial infections can be treated with advantageous synergistic effects when combined antibiotic therapy is used.

This novel concept of synergism can either be beneficial (additive/synergistic interactions) or deleterious (Antagonistic/toxic interactions).^[7] A study reported a synergistic effect between the

plant extracts and the cell wall biosynthesis inhibitor against *S.aureus* and *K.pneumonia* while not much is known about *E.floccosum*.

In previous studies, amoxicillin was secured to synergize well with the various phytochemical compounds. However, Nucleic acid synthesis inhibitors and plant extracts had no synergistic activity. [5]

In gram-positive and gram-negative pathogens such as *Staphylococcus aureus* and *Klebsiella pneumonia*, MDP pumps, which recognized and remove a variety of compounds with unrelated structures from bacterial cells, have been identified. In vitro, it has been demonstrated that some compounds can work synergistically with antibiotics to modify the resistance phenotype in bacteria. [8] As they exhibit a low risk of causing bacterial resistance to their actions, combinations of antibiotics and plant extracts are likely to provide the basis for creating new approaches in resistance modifying agents. These extracts have a combination of different bioactive compounds, which makes microbial adaption extremely difficult compared to single component antibiotics. [5]

Our research indicates that plant extracts strengthen the antimicrobial effects when combined with drugs against clinical infections and can reduce the spread of bacteria. [7]

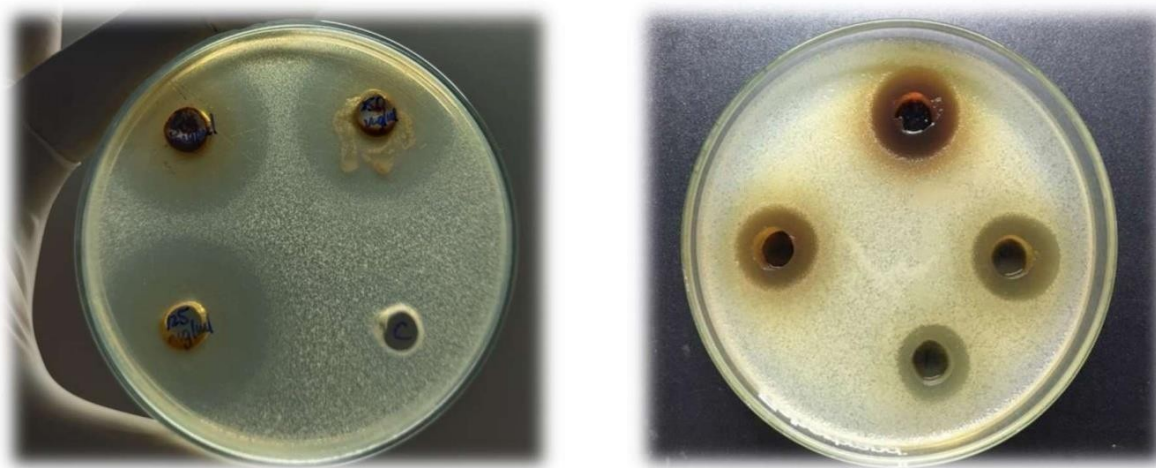


Fig: A closer view of inhibition zones observed in the experiment.

Conclusion

This study concluded that the extracts of *L.inermis* and *P.guajava* are found to have the capacity of increasing the susceptibility of the studied microbial strains to various antimicrobial drugs. The present study clearly states the possibility of the use of the above shown synergistic drug (amoxicillin)-plant combinations for combating infectious diseases caused by *S.aureus*, *K.pneumonia* and *E.floccosum* whereas ciprofloxacin showed a negative effect when combined with both plant extracts.

The results represented in this respective report were encouraging in correlation with amoxicillin, although clinical controlled studies are needed to define the real efficacy and possible toxic effects in vivo. This study majorly suggests the possibility of concurrent use of these antimicrobial drugs and extracts in combination in treating infections caused by respective strains used and plants may play a key future part in clinical studies.

REFERENCE

1. overcoming Sibanda, Timothy, and Anthony Ifeanyi Okoh. "The challenges of antibiotic resistance: Plant extracts as potential sources of antimicrobial and resistance modifying agents." *African Journal of Biotechnology* 6 (2007): n. pag.
2. Adwan GM, Abu-Shanab BA, Adwan KM. In vitro activity of certain drugs in Combination with plant extracts against *Staphylococcus aureus* infections. *Pak J Med Sci* 2008; 24(4):541-4.
3. Adwan, Ghaleb, and Mohammad Mhanna. "Synergistic effects of plant extracts and antibiotics on *Staphylococcus aureus* strains isolated from clinical specimens." *Asian Pacific Journal of Tropical Medicine* 2.3 (2009): 46-51.
4. Aiyegoro, Olayinka A et al. "Synergistic interaction of *Helichrysum pedunculatum* leaf extracts with antibiotics against wound infection associated bacteria." *Biological research* vol.42, 3 (2009): 327-38..
5. Haroun, Mohammad F., and Rawaa S. Al-Kayali. "Synergistic effect of *Thymra spicata* L. extracts with antibiotics against multidrug-resistant *Staphylococcus aureus* and *Klebsiella pneumoniae* strains." *Iranian Journal of Basic Medical Sciences* 19.11 (2016):1193.
6. Donga, S., P. Moteriya, and S. Chanda. "EVALUATION OF ANTIMICROBIAL AND SYNERGISTIC ANTIMICROBIAL PROPERTIES OF *PTEROCARPUS SANTALINUS*". *Asian Journal of Pharmaceutical and Clinical Research*, vol.10, no. 11, Nov.2017, pp. 204-9, doi:10.22159/ajpcr.2017.v10i11.20939.
7. Khameneh, B., Iranshahy, M., Soheili, V. et al. Review on plant antimicrobials: a mechanistic viewpoint. *Antimicrob Resist Infect Control* 8, 118 (2019). <https://doi.org/10.1186/s13756-019-0559-6>



ST. ANN'S COLLEGE FOR WOMEN (A)

(Accredited by NAAC with 'A' Grade, Dt.25-01-2022)
Malkapuram, Visakhapatnam.

www.stannscollegevizag.org
OFFICE: 8978098870, 7993707565