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AWARENESS OF MEDICINAL PLANTS AMONG THE POST-GRADUATE TEACHERS OF BIOLOGY IN TRICHY DISTRICT, TAMILNADU, INDIA

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Abstract

The plants that possess therapeutic properties or exert beneficial pharmacological effects on the animal body are generally designated as "Medicinal Plants". The present study is to identify medicinal plants in India. To develop a tool for ascertaining awareness of P.G Teachers of Biology about Medicinal plants and to find out awareness level of P.G Teachers of Biology a medicinal plants in India. The stratified random sampling technique was adopted for the present study. The investigator has randomly selected the all higher secondary schools in Trichy district. Fifty P.G Botany teachers are selected in Trichy district.

The major findings from percentage analysis show that knowledge/ awareness of Medicinal plant is lacking among P.G Biology teachers of Trichy district, male teachers have more awareness about medicinal plants than that of female teachers. The result shows that rural teachers are more aware of medicinal plants than that of urban teachers. The finding shows that aided school teachers are more aware of medicinal plants than other school teachers. The present study elaborates the positive and effective implications of medicinal plants. This shows that awareness of medicinal plant should be exposed even to the layman of the society, so let us live for the nature, by the nature, of the nature.

Keywords: *Medicinal plants, Teachers, Biology and Awareness.*

Introduction

The plants that possess therapeutic properties or exert beneficial pharmacological effects on the animal body are generally designated as "Medicinal Plants". Although there are no apparent morphological characteristics in the medicinal plants growing with them, yet they possess some special qualities or virtues that make them medicinally important. It has now been established that the plants which naturally synthesis and accumulate some secondary metabolites, like alkaloids, glycosides, tannins, volatiles oils and contain minerals and vitamins.

They serve as therapeutic agents as well as important raw materials for the manufacture of traditional and modern medicine. Substantial amount of foreign exchange can be earned by exporting medicinal plants to other countries. In this way indigenous medicinal plants play significant role of an economy of a country.

In India the use of different parts of several medicinal plants to cure specific ailments has been in vogue from ancient times. The indigenous system of

medicine namely ayurvedic, siddha, and unani have been in existence for several centuries. The system of medicine cater to the needs of nearly seventy percent of our population residing in the villages. Apart from India, these system of medicines are prevalent in Korea, China, Singapore, West Asia and many other countries. Besides the demands made by these system as their raw material, the demand for medicinal plants made by modern pharmaceutical industries has also increased manifold.

However, our knowledge of medicinal plants has mostly been inherited traditionally use of plants for curing various ailments are not confined to the doctors only but is known to several households as well. There are many interesting and sometimes astonishing things to learn from collectors of medicinal herbs. Spreading and preserving this knowledge on medicinal plants and their uses has become important for human existence.

In modern medicine also, plants occupy a very significant place as raw material for some important drugs, although synthetic drugs and antibiotics brought about a revolution in controlling different diseases. But these synthetic drugs are out of reach to millions of people. Those who live in remote places depend on traditional healers, whom they know and trust. Judicious use of medicinal herbs can even cure deadly diseases that have long defied synthetic drugs. Our Pharmaceutical Industry is fairly advanced and sophisticated. The plant based drugs, however, have shortened the life-span of the source of material. There is continuous search for more potent and cheaper raw material to feed the industry with concerted research and development efforts, many medicinal plants could provide raw material in abundance to the indigenous pharmacies and local herbalists. Strong linkages should be developed between medicinal plant growers, health experts and pharmaceutical industries for developing scientific basis on which these systems of medicine are working.

Medicinal plant constitutes an important natural wealth of a country. They play a significant role in providing primary health care services to rural people.

Need and significant of the present study

Nature is the source of happiness, trees and plants play an important role in the growth and development of human. Medicinal plants are useful for society as well as individual. It is economically good as we compare to allopath. In olden days, People one use their Medicinal plants in house itself. They are lived very happily and healthy. So we utilize their medicinal plants with heal their and happier, fruitful life to our body. It doesn't provide any side effect to our body. A medicinal plant is a natural medicine of our health. Now-a-days, Medicinal plants are destroyed by various factors. The study to create an awareness about the medicinal plants among the high school teachers.

1. Plants are multipurpose, it acts as foods, shelter and medicine.
2. Country known for its wealth and prosperity, regarding on its natural resources'.
3. Indian medicinal plants awareness is created at school level for students of higher education.
4. Higher secondary teachers in botany should have a strong knowledge on the topic before presenting it to the students.

Statement of the problem

In the present scenario allopath medicines are rating at a higher level, due to the need and changes, through which side effects are caused a lot. This state has been discarded by the awareness of ayurvedic medicines which are nurture oriented. Since to emphasizes the need of ayurvedic medicine, as an initial stage of analyzing the medicinal plants in India. Science teachers are the facilitators' of both the current and future generations. The first stage is to create an awareness among them about medicinal plants in India, so the investigator choose the topic on "Awareness of Medicinal plants in India among the P.G Teachers of Biology in Nammakkal District".

Objectives of the study

1. To Identify medicinal plants in India.
2. To develop a tool for ascertaining awareness of P.G Teachers of Biology about Medicinal plants in India.
3. To find out awareness level of P.G Teachers of Biology an medicinal plants in India.

Scope of the study

1. The present revolution is grey revolution, that is, it is a world of science and technology empowerment, though there is development and progress something is lacking in our country growth. It is due to the physical and mental of our citizens. "Health is Wealth" is now-a- days becoming the watch word due to side-effects of allopath treatments.
2. Nature is true science, which shows that natural medicinal plants in the form of ayurvedic medicine are emerging due to ill-effects of man-made medicines.
3. Education and training on medicinal plants is blooming by the innovation central institute for medicinal & aromatic plants (CIMAP). In due course, there will be an demand for natural doctors which means a knowledge of medicinal plants.
4. The initial guidance should b given right from the school level through the field of education.

Limitation of the study

1. The presence study was conducted only to P.G Biology teachers.
2. The types of institution selected for the present study are government, aided, self-finance.
3. The sample of fifty selected for this study.
4. The geographical of the study was limited to Trichy district.

Review of Literature

Falcao, Mariath, Diniz, Batista, Barbosa Filho (2008) investigated on "Plants of the American Continent with Antiulcer Activity**".** Peptic ulcer is a chronic and appalling disease. Today, it is dominant among the diseases that affect the world's population. The principal factors causing this disease are inadequate dietetic habits, prolonged use of non-steroidal anti-inflammatory drugs, stress and infection by helicobacter pylori, in addition to other factors of genetic origin. The study was a literature survey of plant extracts from the american continent that have been reported to show antiulcer activity. The review refers to 58 plants with their families, parts used, type of extract used, model bioassays and their activity. The work intends to aid the researchers in the study of natural products appropriate to the treatment of stomach and intestinal diseases, in general, and peptic ulcer in particular.

Singh, Vinjamury, Der-Martirosian, Kubik, Mishra, Shepard, Singh, Meier, Madhu (2007) investigated on "Ayurvedic and Collateral Herbal Treatments for Hyperlipidemia: a Systematic Review of randomized controlled trials and Quasi-Experimental Designs**".** Objective of the study was ischemic heart disease (ihd) is a leading cause of morbidity and mortality in both developing and developed countries. An underlying cause of ihd involves retention and deposit of serum lipids in coronary arteries, decreasing blood flow. Drugs (conventional and herbal) are used to lower levels of serum cholesterol to help prevent ihd. The ayurvedic medicine pharmacopoeia identified herbs that might contribute to a decrease in cholesterol and therefore reduce the risk of ihd. Methods literature searches were conducted at 3 points: 2003, 2004, and 2007. Databases searched included PubMed, the national library of medicine, the national center for complementary and alternative medicine, ovid, and ebsco information services, and other search strategies also were used. Each article was assessed for quality by 3 people, and discrepancies were resolved by arbitration using a fourth person, who also read and scored each article. Additional assessments of safety using a scale and determination of reported efficacy/effectiveness of the randomized controlled trials (rcts) and quasi-experimental designs (qeds) were made finding of the study was rcts generally received high quality scores and improved by decade of publication. More than 50% of garlic, more than 80% of guggul, and 100% of arjuna rcts reported product effectiveness. Safety scores did not improve by decade. The

qeds received medium and high quality scores, and 93% of them reported effectiveness. The qeds had a higher mean score for safety reporting than the acts.

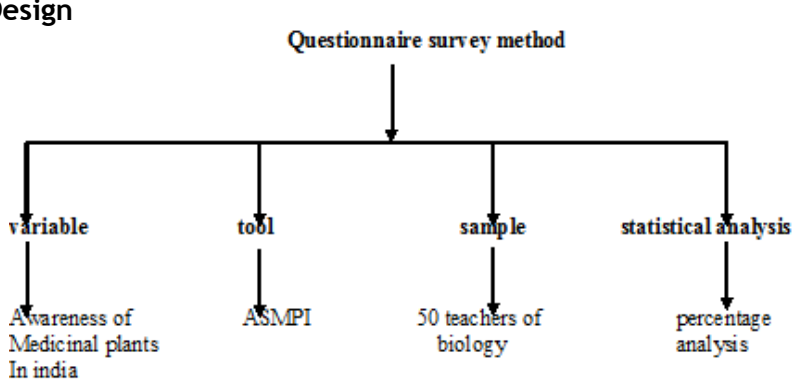
Anita Jain, Katewa, Galav Pallavi Sharma (2005) investicated on "Medicinal plant diversity of sitamata wildlife sanctuary, Rajasthan, India" the present study has been carried out in sitamata wildlife sanctuary of chittorgarh and udaipur district located in south-west region of rajasthan. A field survey of the study area was carried out during 2002–2004 to document the medicinal utility of herbs occurring in this area. Two hundred fourty-three genera belonging to 76 families have been reported which are used by the tribal of about 50 villages around the sanctuary as means of primary health care to cure various ailments. The study revealed the new ethnobotanical uses of 24 plant species belonging to 20 genera. A list of plant species along with their local name, plant part/s used and mode of administration for effective control in different ailments of ethnomedicinal plants.

Prabhakar Doble (2008) investigated on "A target based therapeutic approach towards diabetes mellitus using medicinal plants". *Diabetes mellitus* (Dm) is not one disease but is a heterogonous group of syndromes. Contrary to the popular belief dm is a metabolic disorder characterized by increased blood glucose level (hyperglycemia) and this is because of insufficient or inefficient insulin secretary response. Glucose is the main energy source for the body, and in the case of dm, management of glucose becomes irregular. There are around 410 experimentally proven medicinal plants having antidiabetic properties but the complete mechanism of action is available only for about 109. There are several medicinal plants whose extract modulate glycolysis, Krebs cycle, gluconeogenesis, hmp shunt pathway, glycogen synthesis and their degradation, cholesterol synthesis, metabolism and absorption of carbohydrates, and synthesis and release of insulin. The paper provides a comprehensive review of the mode of action of medicinal plants that exhibit anti-diabetic properties.

Chandra Prakash Kala, Pitamber Prasad Dhyani, Bikram Singh Sajwan (2006) investigated on. "Developing the medicinal plants sector in northern India: Challenges and Opportunities". The medicinal properties of plant species have made an outstanding contribution in the origin and evolution of many traditional herbal therapies. These traditional knowledge systems have started to disappear with the passage of time due to scarcity of written documents and relatively low income in these traditions. Over the past few years, however, the medicinal plants have regained a wide recognition due to an escalating faith in herbal medicine in view of its lesser side effects compared to allopathic medicine in addition the necessity of meeting the requirements of medicine for an increasing human population. Through the realization of the continuous erosion of traditional knowledge of plants used for medicine in the past and the renewed interest at the present time, a need existed to review this valuable knowledge of medicinal plants with the purpose of developing medicinal plants sectors across the different states

in India. Our major objectives therefore were to explore the potential in medicinal plants resources, to understand the challenges and opportunities with the medicinal plants sector, and also to suggest recommendations based upon the present state of knowledge for the establishment and smooth functioning of the medicinal plants sector along with improving the living standards of the underprivileged communities. The review reveals that northern India harbors a rich diversity of valuable medicinal plants, and attempts are being made at different levels for sustainable.

Research Design



Sample

The stratified random sampling technique was adopted for the present study. The investigator has randomly selected the all higher secondary schools in Nammakkal district. Fifty P.G Botany teacher's selected in Nammakkal district.

Procedure for data collection

The investigator herself visited the higher secondary school's located in Nammakkal district and met the head masters of the respective schools and get permission to administer the questionnaire. The investigator gave brief introduction about the questionnaire and the respondent to respond properly. The respondent should make his her answer below in any one of four specified categories. Medicinal plant vernacular name, family, parts use, cure the disease, the researcher ensured that the respondent had understood the direction properly. Respondent were asked to answer each item honestly.

Respondent were asked to check whether all items have been answered. The responses were recorded in it teachers were co – operative during the data collection. When the duly filed questionnaire were compiled and taken in to account for final analysis.

Analysis and Interpretation of Data

Table (1) Awareness scale for medicinal plants in India (ASMPI)

S.No	Botanical name	Whether you know the plant								No
		Yes								
		Vernacular name		Family		Part(s) used		Cure the disease (or) indication		
		Yes	No	Yes	No	Yes	No	Yes	No	
1	*Aristolochia indica*	30	70	48	52	28	72	28	72	
2	*Allium cepa*	88	12	72	28	80	20	76	24	
3	*Allium sativum*	88	12	72	28	70	30	60	40	
4	*Acalypha indica*	70	30	54	46	60	40	58	42	
5	*Adhatoda vasic*	34	66	26	54	48	52	42	58	
6	*Achyranthes aspera*	52	48	30	70	23	77	26	74	
7	*Aegle marmelos*	66	34	44	56	32	68	40	60	
8	*Annona squamosa*	34	66	10	90	46	54	6	24	
9	*Abelmoshus esculantus*	40	60	26	54	26	54	22	78	
10	*Andrographis paniculata*	38	62	28	72	32	68	28	72	
11	*Abutilon indicum*	64	36	62	38	62	38	34	66	
12	*Aloe vera*	48	52	34	66	62	38	54	26	
13	*Cantharanthus roseus*	70	30	38	62	54	26	56	44	
14	*Euphorbia hirta*	74	26	64	36	62	38	44	56	
15	*Lowsonia inermis*	72	28	54	46	62	38	38	62	
16	*Musa paradisica*	82	18	66	34	60	40	60	40	
17	*Ocimum satium*	74	26	52	48	56	44	56	44	
18	*Solanum trilobatum*	58	42	54	26	48	52	23	77	
19	*Hemidemus indica*	42	58	34	66	32	68	32	68	
20	*Coriandrum sativum*	66	34	36	64	36	64	28	72	
21	*Zingiber officinale*	60	40	46	54	48	52	34	66	
22	*Arachis hypogae*	66	34	60	40	54	48	32	68	
23	*Carica papaya*	50	50	34	66	36	64	36	64	
24	*Citrus limon*	30	70	16	84	26	24	26	54	
25	*Coffea arabica*	60	40	52	48	52	48	28	72	
26	*Curcuma longa*	60	40	32	68	32	68	32	68	
27	*Datura innoxia*	8	92	1	99	0	100	0	100	
28	*Solanum nigrum*	0	100	24	76	24	66	26	54	
29	*Azadirachta indica*	76	24	34	66	58	42	68	32	
30	*Coleus aromaticus*	6	94	0	100	0	100	0	100	
31	*Alpina speciosa*	2	98	0	100	0	100	0	100	

32	*Caridiospermum halicacabum*	48	52	38	62	32	68	40	60	
33	*Lantana camara*	46	54	0	100	8	92	8	92	
34	*Punica granatum*	52	48	30	70	34	66	32	68	
35	*Racinus communis*	54	46	48	52	50	50	36	64	
36	*Leucas aspera*	80	20	38	62	60	40	40	60	
37	*Mimosa pudica*	34	66	30	70	34	66	32	68	
38	*Piper longum*	46	54	36	44	34	66	38	62	
39	*Commilina benghalensis*	0	100	0	100	0	100	0	100	
40	*Zizibhus mauritiana*	14	86	0	100	8	92	0	100	
41	*Atropa belladonna*	0	100	48	52	48	52	0	100	
42	*Astragalus gummifer*	0	100	0	100	0	100	0	100	
43	*Asteracantha longifolia*	30	70	16	84	18	82	16	84	
44	*Apium graveolens*	0	100	0	100	2	98	0	100	
45	*Acacia arabica*	62	38	34	66	32	68	34	66	
46	*Acacia catechu*	0	100	0	100	0	100	0	100	
47	*Acacia pennata*	2	98	0	100	0	100	0	100	
48	*Agave americana*	2	98	0	100	0	100	0	100	
49	*Ailanthus excelsa*	2	98	0	100	0	100	0	100	
50	*Gloriosa superba*	46	54	32	68	26	74	22	78	

(b) Descriptive analysis

1. It can be seen table from: 4.2 at an averge 80% of the teachers of biology, vernacular name of only 4 medicinal plants out of 50; 70% of the teachers of botany at an average expressed about their knowledge of 10 medicinal plants; The name of medicinal plants such as *Solanum nigrum, Alpina speciosa, Astragalus gummifer, Apium gravelones, Commilina benghalenis, Acacia catechu, Ailanthus excels, Gloriosa superb,* are not at all known by the teachers of biology.
   It's observed from the table that 50% teachers of biology were not aware of the vernacular name of at least 21 medicinal plants out of 50 listed.
2. At an average of 70% of the teachers of biology family name of only 1 medicinal plant out of 2; 60% of the teachers of the teachers of botany at an average expressed about their knowledge of 6 medicinal plants; the family name of medicinal plants such as *Alpina speciosa, Astragalus gummifer, Apium gravelones, Commilina benghalenis, Acacia catechu, Acacia pennata, Lantana camara, Gloriosa superba,* are not at all known by the teachers of biology.
   It's observed from the table that 50% teachers of biology were not aware of the vernacular name of atleast 35 medicinal plants out of 50 listed.

3. At an average of 70% of the teachers of biology, parts use only 2 medicinal plants out of 50; 60% of the teachers of botany at an average expressed about their knowledge of 9 medicinal plants; the name of medicinal plants such as *Alpina speciosa, Astragalus gummifer, Apium gravelones, Commilina benghalenis, Acacia catechu, Acacia pennata, Agave americana, Ailanthus excels,* are not at all known by the teachers of biology.
   It's observed from the table that 50% teachers of biology were not aware of the vernacular name of atleast 30 medicinal plants out of 50 listed.
4. At an average 70% 0f the teachers of biology, cure the disease only 1 medicinal plants out of 50; 60% of the teachers of botany at an average expressed about their knowledge of 4 medicinal plants; the name of medicinal plants such as *Datura innoxia, Alpina speciosa, Astragalus gummifer, Apium gravelones, Commilina benghalenis, Acacia catechu, Acacia pennata, Agave americana, Ailanthus excels,* are not at all known by the teachers of biology.
   It's observed from the table that 50% teachers of biology were not aware of the cure the disease of medicinal plants at least 42 medicinal plants out of 50 listed. The same way with other variables also done for this study and the major findings are given.

Findings and Conclusion

Major Findings

1. The knowledge/ awareness about (commilina bengahalenis, acacia catechu, acacia pennata, agave asmericana, ailanthus excels) is lacking among P.G Biology teachers of Nammakkal district.
2. The finding is that male teachers have more awareness about medicinal plants than that of female teachers.
3. The result shows that rural teachers are more aware of medicinal plants than that of urban teachers.
4. The finding shows that aided school teachers are more aware of medicinal plants than other school teachers.

Educational Implications

1. Knowledge about medicinal plants and usage should be given right from secondary schooling.
2. A general awareness can be given to layman about medicinal plants and its medical implications/ applications.
3. Though science and technology is empowering in the present scenario, it can't over take the best of nature, so knowledge about natural medicinal plants should be in collated in the school curriculum.

4. Centers should be setup for carrier guidance and educational guidance about medicinal plants through intuition such as central institute for medicinal & aromatic plants (CIMAP).

Conclusion

The present study elaborates the positive and effective implications of medicinal plants. This shows that awareness of medicinal plant should be exposed even to the layman of the society, so let us live for the nature, by the nature, of the nature.

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