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RESEARCH ARTICLE

ETHNO MEDICINAL PLANTS USED FOR ORAL HEALTH CARE BY THE YANADI TRIBE OF NELLORE DISTRICT, ANDHRA PRADESH, INDIA

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ABSTRACT

Yanadis are one of the under privileged scheduled tribes mainly lives in coastal part of Andhra Pradesh state which are living in isolation and are treated as lowest social group and placed just above the scheduled castes in social hierarchy in the Potti SriRamulu Nellore districts. Nellore district has the highest population of Yanadi in the state. Like any other tribe in the country Yanadi also depend on herbs, barks and roots for curative procedures and maintenance of health. Enhancing the sustainable use and conservation of indigenous knowledge of useful and medicinal plants may benefit and improve the living standards of poor people. The aim of this study is to document the ethno medicinal plants used for oral diseases using a specific questionnaire form the traditional healers, elderly people and residents of Gonepalli village of Nellore district. Information on 3 trees, 7 different herbs along with alum and camphor is documented along with the details of the parts of the plants used. This study concludes that this documentation will help to preserve the rich herbal treasure of our tribal population as well as help the pharmacists to derive the active compounds and incorporate them in modern medicine in future.

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INTRODUCTION

Andhra Pradesh state is the homeland for about 33 scheduled tribes (http://shodhganga.inflibnet.ac.in/bitstream/10603/12694/10/10_chapter%203.pdf) living in 8 districts, which form about 6.6 per cent of the State's population. Koya, Banjara/Lambada, Kondareddi, Gond, Chenchu, Yerukala, Yanadi, Savara, and Jatavu are the major ones (Gajrani S. Histrory, 2004; http://shodhganga.inflibnet.ac.in/bitstream/10603/8049/12/12_chapter%204.pdf). Yanadis are one of the under privileged scheduled tribes mainly lives in coastal part of Andhra Pradesh state. As per 2011 Census report, Yanadi population has increased from 3, 95,739 in 2001 to nearly 10 lakhs. Yanadis are living in isolation and are treated as lowest social group and placed just above the scheduled castes in social hierarchy and many rural areas in the Prakasam and Potti SriRamulu Nellore districts (Chandra, 2013). Nellore district has the highest population of Yanadi in the state. Like any other tribe in the country Yanadi also depend on herbs, barks and roots for curative procedures and maintenance of health though occasionally they do visit nearby primary health centre and consult local RMP (Registered medical Practitioner). The World Health Organization (WHO), 1978 has estimated that 80% of the populations of developing countries rely on traditional medicines, mostly herbal drugs, for their primary health care needs (Report of a WHO Meeting, 1978). The use of traditional medicines and medicinal plants in most developing countries as therapeutic agents for the maintenance of good health has been widely observed (Culture and Health, 1996). In India 65 % of the population relies on ethno medicine which is the only source of their primary health care needs. India is one of the twelve mega biodiversity countries of the world having rich vegetation with a wide variety of plants with medicinal value. Over 550 tribal communities are covered under 227 ethnic groups inhabiting about 5000 villages of India in different forests and vegetation types (Kumar, 2014). Due to poor means of communication, poverty, ignorance and lack of access to modern health facilities and affordability to medical management most people especially rural people are compelled to depend on traditional medicines and quacks for their common day ailments (Savithramma *et al*., 2012). Plants have been used in traditional medicine for several thousand years (Abu-Rabia, 2005). In India, drugs of herbal origin have been used in traditional systems of medicine such as Unani, Ayurveda, Siddha (Satyavathi *et al*., 1987). In India, the use of plants for medicinal treatment dates back to 5000 years. It is hoped that, in the future, ethno botany may play an increasingly important note in sustainable development and bio-diversity conservation (Rajasekaran and Warren, 1994). It was officially recognized that 2500 plant species have medicinal valued while

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over 6000 plants are estimated to be explored in traditional, folk and herbal medicine (Huxley, 1984) and 100 species of plants serves as regular sources of medicine (Pei, 2001). Now-a-days plant based drugs are widely used and many countries contributes 40-50% of their total health budget in the production of novel drugs (Sati *et al*., 2010). Documenting the indigenous knowledge through ethno botanical studies is important for the conservation and utilization of biological resources (Muthu *et al*., 2006). Due to lack of interest among the younger generation as well as their tendency to migrate to cities for lucrative jobs, most of the traditional knowledge had faded away and there is a possibility of losing the existing knowledge totally in the near future. With the above said interest, the present study was conducted to document the ethno medicinal practices followed for oral health and diseases by the tribal people of Yanadi tribe inhabiting Gonepalli village near Penchalakona, Rapuru Mandal of Potti Sriramulu district, Andhra Pradesh.

The Study Area

Penchalakona hilly forest area which is a sacred grove is located in Rapur mandal of Nellore District, Andhra Pradesh, India. With the latitude of 14”18”N, longitude of 70”28”, elevation above sea level 45” 3000 feet. It is 70 Kms from Nellore town. Penchalakona houses the temple of Sri Penusila Narasimha Swamy, which is situated at the foot of the hill with a natural water fall and is believed that Kanvamaharshi did his penance here.

MATERIALS AND METHODS

The present study was conducted in Nellore district of Andhra Pradesh. India. Traditional healers, elderly people, residents of Gonepalli village were interviewed for the purpose of documentation of various herbs and their parts used in oral health. The ethno medicinal investigation was done systematically using a specific questionnaire. In addition to the general information, details of the plant or parts of plant used, the purpose for which it is used such as routine teeth cleaning, tooth decay, gum diseases, oral mucosal diseases such as stomatitis or oral aphthous ulcers were noted down. Interview was carried out in local language and the details were recorded. The ethno medicinal data collected was entered in a data base.

RESULTS

Information on 3 trees, 7 different herbs along with alum and camphor used for various oral problems was documented in the present study in Table I. Many of these plants are still being used. Out of the 12 species, 10 species are used for toothache, 5 are used to relieve the pain from stomatitis oral ulcers and heal them, 4 species were used in treating gum diseases and 3 species for dental caries (Figure: 1). The various parts of plants used for different purposes are shown in Figure: 2. In addition to the plants mentioned in the Table I, some people are also using charcoal, half burnt rice bran mixed with salt, soot formed on the vessels or chimneys after heating with wood etc for regular cleaning of teeth.

DISCUSSION

There is a remarkable world-wide progress in the field of diagnostic, curative and preventive medicine, still there are large population of tribal people living in isolation maintaining their traditional values and traditional healing practices for various ailments. Hence this current study was done among the Yanadi tribe of Gonepalli village of Nellore district, Andhra Pradesh, India to provide data on their tradition practices and various ethno medicinal plants they are using for various oral problems, which would yield valuable information for proper documentation of valuable ethno medicinal practices and protecting this wealth of knowledge from the danger of losing because this is not transferred to younger generation. This documentation would also help the pharmacologists to extract the active ingredients and incorporate them into modern health care practices for easier and cheaper oral health treatments.

Table I
List of the plants and their parts used for specific oral problems

S.No	Scientific name	Part used	Used for
1	*Nicotiana tabacum*	Leaf	Tooth ache
2	*Carica papaya*	Keep cotton dipped in the latex of the stem on the aching tooth	Mouth ulcers and tooth ache
		Fruit	Mouth ulcers, gum disease and toothache.
3	*Cinnamomum zeylanicum*	Bark	Strengthen the teeth
		Oil	Dental caries
		Powder is boiled in the water and swished in the mouth	Gum diseases
4	*Acacia nilotica*	Dry seed powder	Tooth ache
		Bark juice orally after adding a little sugar	Mouth ulcers
		Gargle the decoction of the bark	Strengthening teeth
5	*Solanum nigrum*	Fresh leaves are chewed	Mouth ulcers
		Fruits are chewed	Mouth ulcers
		Fruits are burnt to ash and applied	Tooth decay
		Dried or fresh fruit are burnt and smoke is inhaled	Tooth ache
6	*Pergularia daemia*	Latex	Tooth ache
7	*Allium sativum*	Cloves	Tooth decay
8	*Alum*	Small piece kept in a cotton swab, put it under affected tooth for 5 mins	Tooth ache
		Mixed in lukewater and swished	Gum diseases and mouth ulcers
		Grind alum into powder, sprinkle powder on ulcers, keep for 5 mins and then drip out the saliva	Mouth ulcers
9	*Phyllanthus niruri*	Leaves	Mouth ulcers
		Fruits	Tooth ache
10	*Camphor*	Along with beetle quid	Tooth ache
		Massage over gums	Gum pain and mouth ulcers
11	*Mentha arvensis*	Chewing leaf	Tooth ache, gum diseases and mouth freshening
12	*Soymida febrifuga*	Chewing bark	Tooth ache

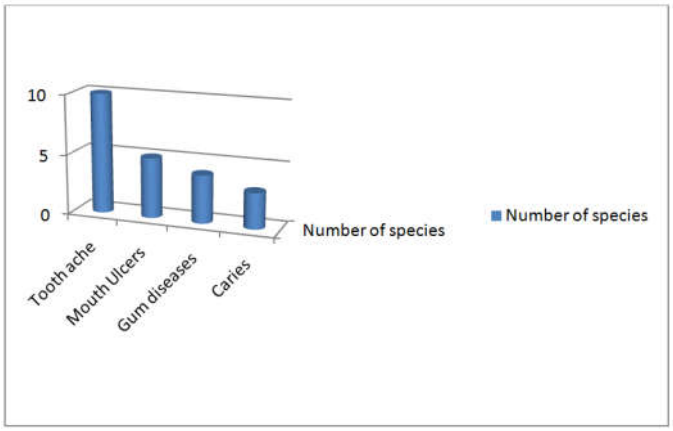

Figure 1. Number of species used for various oral ailments

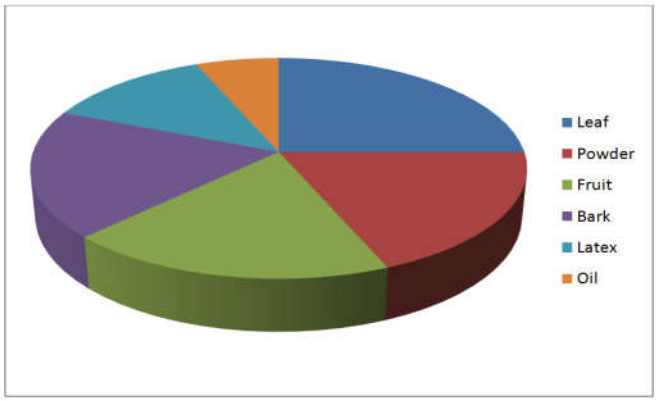

Figure 2. Different parts of the plants used

Information on three trees, six different herbs along with alum and camphor used for various oral problems was documented in the present study. Tobacco leaf was chewed to relieve tooth ache by some participants in the present study. The leaves of the tobacco plant have been used in traditional Indian medicine as a sedative, antispasmodic, and vermifuge. They are also considered antiseptic, emetic and narcotic (Rawat and Mali, 2013). Deepa *et al*., 2011, Yadav *et al*., 2014, Deka *et al*., 2014, Bora *et al*., 2012 and Ganesan, 2006 also reported the use of Nicotiana tabacum (Deepa *et al*., 2011; Yadav and Prachanti, 2014; Deka and Nath, 2014; Bora *et al*., 2012; Ganesan, 2008). The latex and the fruit of Carica papaya was used for mouth ulcers, gum problems and tooth ache. The many benefits of papaya owed due to high content of Vitamins A, B and C, proteolytic enzymes like papain and chymopapain which have antiviral, antifungal and antibacterial properties (Aravind *et al*., 2013). Carica papaya was mentioned to be used for various oral problems in a study conducted by Achuta *et al*., 2010 among a large number of tribes such as *Gond, Kol, Baiga, Panica, Khairwar, Manjhi, Mawasi* and *Agaria* in the district of Rewa (Shukla *et al*., 2010). Cinnamomum zeylanicum bark was used in the present study, whereas C. Bejolghota (Yadav and Prachanti, 2014), C. verum (Ganesan, 2008) and C. Tamala (Sharma and Joshi, 2010) were reported in other studies to be used for tooth ache. Seeds and bark of Acacia nilotica were used for different oral ailments by the present study population. In the study conducted by Deshpande *et al*., 2012 preliminary phytochemical screening of ethanol and petroleum ether extract of stem bark of Acacia nilotica was carried out. The results indicated that Acacia nilotica could be used as a source of antimicrobial agents to treat dental caries (Deshpande and Kadam, 2013).

In the present study various parts of the herb Solanum nigrum were used for various oral ailments. The similar spieces was reported to be used by Ganesan, 2008 in different districts of Tamilnadu (Ganesan, 2008), Mohan *et al*., 2008 in Tirunelveli district of Tamilnadu (Mohan *et al*., 2008), Muthu *et al*., 2006 in Kancheepuram district of Tamilnadu (Muthu *et al*., 2006) and by Revathi *et al*., 2010 among the Irula tribe of Hasanur hills of Erode district in Tamilnadu (Revathi and Parimelazhagan, 2010). Some studies have also reported the use of Solanum but species other than nigrum for various oral ailments [Deepa *et al*., 2011, Ayyanar *et al*., 2005, Badgujar *et al*., 2008, Diwan *et al*., 2013] (Deepa *et al*., 2011; Ayyanar and Ignaciniuthu, 2005; Badgujar *et al*., 2008; Diwan *et al*., 2013). The latex of Pergularia daemia is used by the Yanadi tribals of Gonepalli village for tooth ache. This plant has been demonstrated to possess multiple pharmacological activities such as anti-inflamatory, hepatoprotective, anticancer, antidiabetic, antioxidant, antibacterial, antifungaI, analgesic, antiinfertilty and central nervous system depressant activity (Karthishwaran and Mirunalini, 2010). The cloves of Allium sativum were used to relieve pain from tooth decay in the present study population. Butani *et al* in 2008 conducted a systematic review to assess information on oral health related cultural beliefs among four ethnic groups in the USA (African-American, Chinese, Filipino and Hispanic/Latino). African-Americans reported to use oil of cloves to relieve toothache (Butani *et al*., 2008). It was also used by tribal people of Wayanad district of Kerala as reported by Deepa *et al*. (2011). Deka *et al*., 2014 reported that ethnic tribes of Nalbari and Barpeta districts of Western Assam use Allium sativum cloves for gum pain (Nivetha *et al.,* 2014). Sharma *et al*., 2009 in their ethano-medicinal survey in Almora district of Uttarakhad documented that the paste of the bulb is applied to the gums and cavities of infected teeth (Sharma and Joshi, 2010).

Phyllanthus niruri leaves and fruit were used by the current study population for toothache and mouth ulcers. The same plant species was said to be used by Natarajan *et al*., 2010 in their etho-medical-botanical survey in the Malliagainatham village, Kandankathri taluk, Pudukottai district, Tamilnadu (Nivetha *et al*., 2014). Some other studies have used other species of Phyllanthus for different oral ailments [Deepa *et al*., 2011, Yadav *et al*., 2014, Sharma *et al*., 2010, Muthu *et al*., 2006, Revathi *et al*., 2010, Ayyanar *et al*., 2005]. The study population chewed the leaves of Mentha piperita to relieve toothache and also for mouth freshening. Ganesan also reported its use among different ethnic groups of six districts of Tamilnadu (Ganesan, 2008). The bark of Soymida febrifuga was chewed to relieve toothache by the Yanadi tribals of Gonepalli village, Savithramma N *et al* who have done an ethno-botanical survey among the Yanadi tribe of penchalakona forest also reported the use of this plant by these tribals (Savithramma *et al*., 2012). Alum is a colourless chemical compound containing potassium sulphate used as an astringent. It was used in very small quantities among the present study participants for relief from toothache and oral ulcers. Powdered alum was used to treat gum diseases by the Chinese ethnic group in the study conducted by Butani *et al*. (Butani *et al*., 2008). Though camphor is known to be toxic it was used in small quantities along with beetle quid to relieve toothache by the Yandi tribals studied. Camphor seems to stimulate nerve endings that relieve symptoms such as pain and itching when applied, it has a cooling and a soothing effect which relieves ulcerative pain immediately (Nivetha *et al*., 2014). Cotton balls soaked in turpentine oil were used by the

African-Americans in the study done by Butani Y *et al* to relieve toothache (Butani *et al*., 2008).

Conclusion

Throughout our evolution, the importance of using natural products for medicine has been increasing. Although not specifically proven the beneficial effects of ethno medicinal practices are well established and time tested. Proper documentation of these medicinal plants will preserve the rich herbal treasure of the tribal population. Investigation of the active components of the individual herbs further will help the pharmacists to incorporate these biologically active components of the plants into the modern oral care which can be made easily available to all and improve the standards of poor people.

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