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Ethnomedicine for Rheumatoid Arthritis by Tribes of Papikondalu Forest, Andhra Pradesh, India

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ABSTRACT

Objective: The present study represents the information about the treatment of rheumatoid arthritis by the tribes of Papikondalu forest, Andhra Pradesh, India.
Methods: The documented medicinal plants were labeled alphabetically with their voucher specimen number, family name, vernacular names, parts used and mode of administration.
Results: A total of 26 medicinal plant species belonging to 25 genera and 22 families were recorded.
Conclusions: The documented of these medicinal plants against rheumatoid arthritis that these ethnic people are still dependent on local vegetation for their life care. The indigenous knowledge available with these studies plays an important role in quick and proper identification of natural resources for rheumatoid arthritis.

Keywords- Folkmedicine, Medicinal plants, Traditional healers, Indigenous plants, Papihills.

INTRODUCTION

Papikondalu is a breathtakingly beautiful hill range bounded by River Godavari in the state of Andhra Pradesh, India. Papikondalu forest range comprises 12 mandals inhabited by the tribals. It lies between the 17^0 28^1 48.39^{11} North latitude 81^0 29^1 16.34^{11} Eastern longitude. It is bounded on the north by Khammam district, on the south by West Godavari district, on the east by East Godavari district and on the west by Khammam and West Godavari districts. The Papikondalu is covered by tropical rain forests and it was recently declared as a protected National park by Government of India. (Fig.1.0). Papikondalu has geographical area of 1,99,825 sq.km with a total population of 2,48,869[1] and divided into three revenue divisions with headquarters at Chinturu, Rampa Chodavaram and Polavaram. The tribal population mostly concentrated in 492 villages of 12 revenue mandals and the

livening tribals are Bagata, Bhil, Chenchu, Gond/Naikpod, Hill Reddi, Jatapu, Kammara, KattuNayakhan, Kolam, Konda Dora, Konda Kapu, Kondh, Kotia, Koya, Mukha Dora, Nayak, Pardhan, Porja, Reddi Dora, Savara, Lambada, Valmiki, Yenadi and Yerukula.

India is rich in ethnic diversity and indigenous knowledge that has resulted in exhaustive ethnobotanical studies. In recent years some works[2-5] have reported various medicinal plants used for rheumatoid arthritis by tribals in India. There are no previous reports on the documentation of knowledge of utilization of medicinal plants for rheumatoid arthritis by tribes in Papikondalu forest, Andhra Pradesh, India. Hence, an attempt was made to collect and documentation of the ethnomedicinal knowledge of tribes of Papikondalu forest area.

METHODOLOGY

The survey was carried out during 2011-2014 covered agency areas of Papikondalu forest. Several field trips were organized to administer questionnaires and interviews to traditional healers. The questions were designed to obtain information on their knowledge of rheumatoid arthritis, plants used in treating the disease, method of preparation and mode of administration. Only the recipes that were cited by at least three different informants were retained in the study. The collected plant species were identified with the help of flora of Presidency of Madras and recent floras and taxonomic revisions [6]. The plant species were also taken (Plate 1). The voucher specimens were kept in the herbarium of Department of Botany, Andhra University, Visakhapatnam, Andhra Pradesh, India.

RESULTS AND DISCUSSION

The present investigation reveals the folkloric uses of 26 plant species belonging to 25 genera and 22 families. Among them, 12 are trees, 8 are shrubs, 4 are herbs and one species each for climber and Grass. The whole plant or different plant parts such as leaves, roots, bark, seeds, latex, gum etc. in form of various traditional preparations were used to cure various joint pains as reported by traditional healers and local herbal medicinal practitioners. Roots of 9 plant species, bark of 8 species, 3 species each for whole plant and leaves, one species each for seeds, latex and gum were used for the treatment of rheumatoid arthritis. Medicinal plants were used either externally or internally to cure arthritis in more than one form of preparations like decoction, powder, extract, juice, fruits, seeds, latex, gum, infusion and various other forms (Table 1). The dosage was prescribed depending upon the age of the patient and type or severity of pains.

Most of the tribals are depend for their livelihood on forest-based products. These forest dwellers live in forests and possess vast knowledge of various aspects of plants. They move around the forest for their day to day requirements, cultural activities and performing rituals. Forest resources are the only means of livelihood for them to cater the need of food, fodder, fuel, medicines, dye, gum, tannin, thatching, house hold and farming implements etc. These resources are under threat due to over exploitation for forest land for agriculture purpose by the local people. Besides, urbanization and heavy grazing pressure are other important reasons for removal of medicinal flora from the Papikondalu forest region. If strategies and steps for conservation and management of plants are not taken these precious resource may be lost forever. Ethnic and indigenous people are playing a vital role in conserving the

species and their traditional knowledge as these are very useful in Ecorestoration[7].

The present ethnomedicinal investigation also revealed that the tribal people of Papikondalu forest have great faith in their traditional system of medicine and still depend upon natural plant resources to cure their joint pains. Simultaneously, it is observed that new generation is almost ignorant or least interested in ancient traditional method of healing. Therefore, it is felt that documentation of plant related indigenous throughout tribal area needs to be completed along with creation of awareness among the youngsters, so that rapid erosion of the valuable knowledge about plant resources can be checked to a certain extent.

CONCLUSION

It is learned through the survey that local people are still dependent on plant resources for the treatment of rheumatoid arthritis, but this kind of dependence is decreasing. This is likely due to the uses of plants as medicine has not been recorded; it is orally familiar to the rustics and tribal. Present day traditional healers and elder medicine men became very old. Due to lack of interest among younger generation and their tendency to migrate into cities for lucrative jobs, the wealth of traditional knowledge of the tribal of this area is declining. The region is still ethnobotanically under exploration; therefore, the present study may adduce a contribution to the existing knowledge of folk remedies. Now the time has come to compile and document medicinal potential of such herbal plants. The indigenous knowledge available with these studies plays an important role in quick and proper identification of natural resources for rheumatoid arthritis.

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Conflict of Interest

The authors declare that there is no conflict of interests regarding the publication of this paper.

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Table 1. Ethnomedicinal plants used for rheumatoid arthritis in Papikondalu forest

Plant name	Common name	Family	Mode of Administration
Artocarpus heterophyllus Lam.	Panasa	Moraceae	Ten ml of root decoction is administered on affected areas daily twice till cure.
Azadirachta indica A. Juss.	Vepa	Meliaceae	Seeds with those of *Piper betle, Eucalyptus globules* and *Aloe vera* are taken in equal quantities and ground. Paste mixed with a pinch of camphor is applied on the affected areas daily twice for 3 days.
Barringtonia acutangula (L.) Gaertn.	Kanapa	Barringtoniaceae	Ten ml of stem bark decoction is administered on affected areas daily twice till cure.
Calotropis gigantea (L.) R.Br.	Tella jilledu	Asclepiadaceae	Two spoonful of root decoction in a glass of hot water administered daily twice for five days. Meanwhile, the leaves soaked in castor oil and mildly heated and applied on the affected areas for an hour daily once for five days.
Calycopteris floribunda Lam.	Geddapu teega	Combretaceae	Thirty ml of whole plant decoction is administered on affected areas twice a day for seven days.
Cassia occidentalis L.	Kasintha	Caesalpiniaceae	Leaf juice is applied on the affected parts till cure.
Cinnamomum camphora (L.) Nees & Eberm.	Karpuram chettu	Lauraceae	Latex mixed with coconut oil is warmed and applied on the painful joints.
Cinnamomum zeylanicum Garc. ex Bl.	Dalchina chekka	Lauraceae	Stem bark decoction is administered orally in doses of 30 ml once a day till cure.
Cissus pallida (Wight & Arn.) Steud.	Nallateega	Vitaceae	Ten ml of root decoction is administered orally once a day for seven days.
Citrullus colocynthis (L.) Schrad.	Etipucha	Cucurbitaceae	Root, long pepper seeds are taken in equal quantities and pestle. Ten g of powder is taken along with one spoon of jaggery twice a day till cure.
Clerodendrum serratum (L.) Moon	Bramalamari	Verbenaceae	Three g of root paste is administered along with one glass of water twice a day for 5-7 days.
Coccinia grandis (L.) Voigt.	Kakidonda	Cucurbitaceae	Leaf juice is applied on the painful joints.
Commiphora mukul Jacq.	Guggulu	Burseraceae	Half spoonful of gum paste mixed with a cup of water is administered twice a day till cure.
Cymbopogon flexuosus (L.) Rendle	Nimma gaddi	Poaceae	Thirty ml of whole plant decoction is administered twice a day for 10 days. Whole plant paste is applied on the affected areas.
Echinops echinatus Roxb.	Mulla banthi	Asteraceae	Leaf paste is warmed and applied on the affected areas once a day till cure.
Entada rheedii Spreng.	Bojje	Mimosaceae	Stem bark decoction is administered in 30 ml dose daily once till cure.
Helicteres isora L.	Godratada	Sterculiaceae	Ten ml of root decoction is administered daily twice till cure.
Ipomoea obscura (L.) Ker-Gawl	Nallakokkitha	Convolvulaceae	Whole plant decoction is administered in doses of 30 ml twice a day till cure.
Limonia acidissima L.	Velaga	Rutaceae	Two spoonful of stem bark juice is taken twice a day for three days
Mucuna pruriens (L.) DC.	Dulagondi	Fabaceae	Two spoonful of root decoction is taken once a day for ten days.
Radermachera xylocarpa (Roxb.) K. Schum.	Naguru	Bignoniaceae	Three spoonful of stem bark decoction is administered once a day for ten days.
Ricinus communis L.	Amudamu	Euphorbiaceae	Two spoonful of root decoction is taken twice a day for ten days.

Strychnos nux-vomica L.	Mushti	Loganiaceae	Stem bark paste is boiled with gingelly oil and applied on the affected areas till cure.
Vitex negundo L.	Vavili	Verbenaceae	Five g of root powder mixed with two spoons of cow ghee is roasted and eaten twice a day till cure.
Ximenia americana L.	Kondanakkera	Olacaceae	Stem bark decoction is taken orally once a day till cure.
Xylia xylocarpa (Roxb.) Taub.	Konda tangadu	Mimosaceae	Stem bark decoction is administered in 30 ml dose daily once till cure.

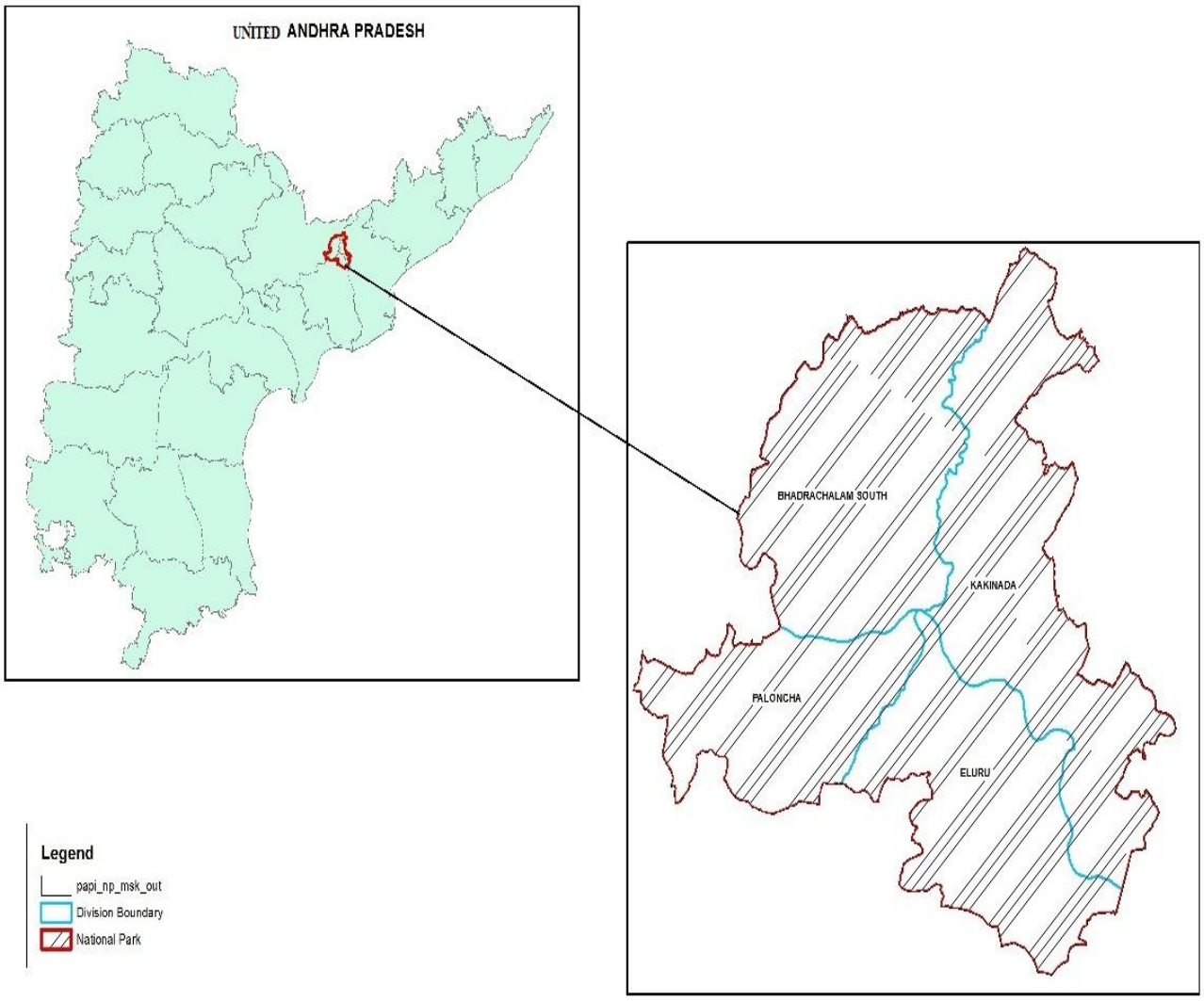

Fig. 1: Papikondalu forest area

***Barringtonia acutnagula* (L.) Gaerten**

***Calotropis gigantean* (L.) R.Br.**

***Cassia occidentalis* L.**

***Coccinia grandis* (L.) Voigt.**

***Strychnos nux-vomica* L.**

***Xylia xylocarpa* (Roxb.) Taub.**

Plate 1: Some plants use in Rheumatoid arthritis