

Ethnomedicine for Rheumatoid Arthritis by the tribes of Adilabad district, Andhra Pradesh

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Abstract

The paper deals with 44 species of plants covering 43 genera and 33 families used for curing rheumatoid arthritis by the tribes of Adilabad district, Andhra Pradesh. Fabaceae and Euphorbiaceae are the dominant families with 4 species each followed by Asclepiadaceae (3 spp); Malvaceae, Sterculiaceae and Moraceae (2 spp each) and others. Habit-wise analysis showed the dominance of trees (15), followed by shrubs and herbs (12 each), climbers (4) and a lone epiphyte. Morphological analysis showed the maximum utilization of root in 14 practices followed by leaf (10), stem bark (9), seed (5), fruit (3), stem (2) and others. *Dolichandrone atrovirens*, *Sesbania procumbens* and 22 practices were found to be new or less known. More detailed scientific studies are needed to evaluate the efficacy and safety of the remedies employed traditionally.

Keywords: *Ethnomedicine; Rheumatoid arthritis; Adilabad district; Andhra Pradesh*

Introduction

Rheumatoid arthritis (RA) is the most common form of chronic inflammatory joint disease. In its typical form RA is a symmetrical, destructive and deforming polyarthritis affecting small and large synovial joints, with associated systemic disturbance, a variety of extra articular features and the presence of circulating anti-globulin antibodies. It occurs throughout the world and in all ethnic groups. The overall prevalence of RA is about 1%, with a female to male ratio of 3:1. The disease starts commonly between the third and fifth decades but the age of onset follows a normal distribution curve and no age group is exempted.

Though ethnomedicinal studies were carried out on different diseases exclusive studies on rheumatoid arthritis are not many necessitating the present study (Dwivedi *et al.* 2005; Pawar and Patil, 2006; Dinesh Jadhav 2007, Naidu *et al.*, 2008; Biswas *et al.*, 2010; Sutha *et al.*, 2010; Nath *et al.*, 2011; Bussmann and Glenn 2011; Naidu *et al.*, 2012; Manjula *et al.*, 2013).

Material and Methods

Extensive ethnobotanical explorations were conducted in 42 villages of Adilabad district during 2006-2009. Knowledgeable informants including the *vaidyas* and elderly persons (42) of the tribal communities were thoroughly interrogated for recording local names, parts used, methods of preparation of herbal drugs, dosage and their mode of administration. The plant species collected were identified with the help of Flora of Presidency of Madras (Gamble, 1916-1935) and the voucher specimens were deposited in the Herbarium of the Department of Botany, Andhra University, Visakhapatnam.

Adilabad district is situated between 77° 47' and 80° 0' of the eastern longitudes and 18° 40' and 19° 56' of northern latitudes. The district is bounded on North by Yeotmal and Chanda districts of Maharashtra, on the East by Chanda district, on the South by Karimnagar and Nizamabad districts and on the West by Nanded district of Maharashtra state. It ranks second among

all the districts in the state in forest area occupying about 44.5 per cent (7218.86 Sq km). The total tribal population of the district is 4,16,511 (16.74%) as per 2001 census. The main tribes are Gonds, Kolams, Koyas, Lambadas, Mannes, Naikpods, Pradhans, Thoties and Yerukalas.

Enumeration

The plants are enumerated and presented in an alphabetical order with botanical name, followed by family, vernacular name, English name, locality, voucher specimen number, ethnomedicinal uses, parts used and method of administration. Plants and practices marked with an asterisk (*) are considered to be new or less known.

Ailanthus excelsa Roxb. Simarubaceae VN: Peddamanu E: Tree of heaven, Bela, 7510

Bark extract is orally administered in 2 spoonful twice a day for about 45 days.

Amaranthus spinosus L. Amaranthaceae VN: Nalladogata E: Prickly amaranth, Jainad, 7752

* Root paste mixed with *Sesamum* oil is massaged on affected areas.

Asparagus racemosus Willd. Liliaceae VN: Pilliteegalu E: Climbing asparagus, Peddur, 7226

* Leaf paste is massaged gently on painful parts twice a day till relief.

Asystasia gangetica (L.) Anders. Acanthaceae VN: Podabeera E: Chinese violet, Jainoor, 7192

Leaf juice is taken in 2 spoonful twice a day for 15 days.

Azima tetraantha Lam. Salvadoraceae VN: Uppiteega E: Needlebrush, Kerimeri, 8292

* Crushed roots and leaves are mildly heated and gently massaged on the affected parts twice a day till cure.

Brassica juncea (L.) Czern. Cruciferae VN: Aavalu E: Indian mustard, Sirpur, 7684

* Seed oil is gently massaged on painful areas.

Bridelia squamosa (L.) Gaertn. Euphorbiaceae VN: Duramaddi, Laxmanachanda, 8144

Bark is ground with *Sesamum* oil and the poultice is used as liniment.

Calotropis gigantea (L.) R. Br. Asclepiadaceae VN: Tellajilledu E: Gigantic wallwort, Kuntala, 7142
Leaf extract is applied externally on painful parts.

Casearia elliptica Willd. Flacourtiaceae VN: Kanamchettu E: Asna, Tandra, 7652

* Bark decoction is given in 50ml dose once in the morning for 15 days.

Catunaregam spinosa (Thunb.) Tiruv. Rubiaceae VN: Mangachettu E: Emetic nut, Mudhole, 7762

Bark paste is applied externally to relieve pain.

Cryptolepis buchananil Roem. et Schult. Asclepiadaceae VN: Palateega E: Wax leaved climber, Tanbor, 7798

Root paste is applied on painful parts till cure.

Derris scandens (Roxb.) Benth. Fabaceae VN: Sakalteega E: Jewel vine, Tanbor, 8012

Root decoction is given with sugar candy in 1 glassful once a day for one week.

Dichrostachy Scinerea (L.) Wt. et Arn. Mimosaceae VN: Veluturuchettu E: Sickle bush, Narnoor, 7366

* Tender shoot juice is gently massaged on painful parts till cure.

Dolichandrone atrovirens (Roth.) Sprague Bignoniaceae VN: Nirwodi E: Indian trumpet flower, Neradigonda, 7842

Leaf decoction given in 2 spoonful twice a day for about 20 days.

Euphorbia tirucalli L. Euphorbiaceae VN: Manchijamudu E: Round milk hedge, Narsapur, 7542

Stem juice is administered in 2 spoonful with ½ glass of goat milk twice a day for 10-15 days.

Ficus bengalensis L. Moraceae VN: Marrichettu E: Banyan tree, Dilawarpur, 8148

* Latex is applied on painful parts till cure.

F. microcarpa L. f. Moraceae VN: Pasupumedi E: Chinese banyan, Tamsi, 8564

* Leaf and stem bark poultice is warmed and applied on the painful parts.

Holoptelea integrifolia (Roxb.) Planch. Ulmaceae
VN: Thamsichettu E: South Indian elm, Sarangapur,
7708-199

Stem bark decoction is administered in 20 ml dose
twice a day for about 7days.

Jatropha curcas L. Euphorbiaceae VN:
Adiviamudamu E: Physic nut, Bazarhatnoor, 7370
Stem bark poultice is used to massage on painful
parts.

Madhuca longifolia (Koen.) Mac Br. Sapotaceae
VN: Ippa E: Indian butter tree, Gudihathnoor, 8028
Oil extracted from seeds is massaged on painful parts.

Maytenus senegalensis (Lamk.) Exell. Celastraceae
VN: Danti E: Confetti tree, Narnoor, 7890

* Leaf ash mixed with ghee is massaged on painful
parts.

Momordica charantia L. Cucurbitaceae VN: Kakara
E: Bitter gourd, Talamadugu, 8088

Ripe fruit with sugarcandy is administered in 2
spoonful twice a day for 15 days.

Ocimum tenuiflorum L. Lamiaceae VN: Tulasi E:
Holy basil, Tamsi, 7496

* Leafjuice mixed with a little camphor is administered
in 1 spoonful twice a day for one week.

Plumbago zeylanica L. Plumbaginaceae VN:
Chitramoolam E: Ceylon leads wort, Keshalpur, 7210
Root decoction is administered in 2spoonful twice a
day for 15days.

Pterospermum xylocarpum (Gaertn.)Sant. et Wagh.
Sterculiaceae VN: Tapachettu E: Malabar kino,
Dilawarpur, 8490

* Stem bark decoction is given in 2spoonful twice a
day for 7days.

Pueraria tuberosa (Willd.) DC. Fabaceae VN:
Nelagummadi E: Indian kudzu, Kubeer, 8016
Root decoction is given orally in 2 spoonful twice a
day for 15days.

Rauvolfia serpentina (L.) Benth. exKurz
Apocynaceae VN: Patalagaridi E: Serpentinroot,
Bela, 7862

*Dried root powder mixed with mustard oil is
massaged on painful areas.

Ricinus communis L. Euphorbiaceae VN. : Amudamu
E : Castor, Jainad, 7902

Root decoction is given in ½ glass dose once a day
for 15days.

Rorippa indica (L.) Hiern . Brassicaceae VN:
Nelasarisi E: Indian field-cress, Bhaisna, 8120

*Seed powder is given in 1 spoonful twice a day for
20days.

Semecarpus anacardium L. f. Anacardiaceae VN:
BhilawaE: Marking nut, Jainoor, 7010

Seeds are boiled in water and milk and the decoction
is administered in 2 spoonful twice a day for 2 months.

Sesbania procumbens (Roxb.) Wt. et Arn. Fabaceae
VN: Avise E: West Indian pea, Bejjur, 7014

Flowers and seeds boiled in *Sesamum* oil are
administered in 2 spoonful twice a day for 15days.

Sida acuta Burm. f. Malvaceae VN: Parasukampa E:
Hornbean leaved sida, Dahegaon, 7014

Root paste mixed with *Sesamum* oil is applied on
painful parts.

Sterculia urens Roxb. Sterculiaceae VN: Tapasichettu
E: Gum karaya, Tamsi, 7034

*Stem bark is ground with turmeric powder and the
warmed poultice is administered in 2 spoonful twice
a day for 7days.

Tephrosia purpurea Pers. Fabaceae VN: Vempali E:
Wild indigo, Peddur, 8640

Root paste is warmed and applied externally on
affected parts till cure.

Terminalia chebula Retz. Combretaceae VN:
Karakkai E: Chebulicmyrobalan, Rebbena, 7062

*Fruit powder mixed with the latex of *Ficus racemosa*
is massaged on the painful parts.

Tinospora cordifolia (L.) Merr. Menispermaceae
VN: Tippateega E: Gulanchatinospora, Laxithipet,
7066

*Dried fruit powder mixed with honey is administered
in 2 spoonful twice a day for 20 days.

Toddalia asiatica (L.) Lamk. Rutaceae VN: Kondakasinda E: Wild orangetree, Wankidi, 8624

* Leaf decoction is given in 2 spoonful twice a day for 10 days.

Trichodesma indicum (L.) R. Br. Boraginaceae VN: Nelanakshatralu E: Indianborage, Pandepalli, 8504

* Warmed root poultice is massaged on painful parts.

Tylophora fasciculata Ham. Asclepiadaceae VN: Verripalatega, Vemanapalli, 8512

* Root extract is administered orally in 2 spoonful twice a day for 10-15days.

Urena lobata L. Malvaceae VN: Nallabenda E: Aramina, Koutala, 8516

*Whole plant poultice mixed with *Sesamum* oil is warmed and massaged gently on painful parts 2-3 times a day till cure.

Vanda tessellata (Roxb.) Hook. f. ex Don Orchidaceae VN: Badanika E: Ichneumonplant, Bheemini, 8520
Aerial roots ground with *Sesamum* oil is applied on painful parts till cure.

Vernonia albicans DC. Asteraceae VN: GaritakammiE: Ash colored fleabane, Nennel, 8524

*Root decoction in 50ml dose is taken twice a day for 20 days.

Vetiveria zizanioides (L.) Nash Poaceae VN: VattiveruE: Khus-khus gander vetiver, Tiriyan, 8608

*Vetiver oil extracted from roots is used to massage on painful parts.

Woodfordia fruticosa (L.) Kurz. Lythraceae VN: JeguruE: Fire flame bush, Bejjur, 8596

Warmed leaf poultice is gently massaged on painful parts twice a day till cure.

Results and discussion

The study yielded 44 species of plants covering 43 genera and 33 families used by the tribals of Adilabad district, Andhra Pradesh for curing rheumatoid arthritis. Fabaceae and Euphorbiaceae are the dominant families with 4 species each followed by Asclepiadaceae (3 spp); Malvaceae, Sterculiaceae and Moraceae, each with 2 species and others with one

species each. Habit-wise analysis showed the dominance of trees (15), followed by shrubs and herbs (12 each), climbers (4) and a lone epiphyte. Morphological analysis showed the dominance of root used in 14 practices followed by leaf (10), stem bark (9), seed (5), fruit (3), stem (2), whole plant, flower, aerial root and latex, one each. They are administered either in the form of decoction, juice, paste, powder or poultice, with either water, milk, honey, ghee, sesame oil, mustard oil, camphor, sugar candy or turmeric. They are administered either orally or massaged. *Dolichandrone atrovirens*, *Sesbania procumbens* and 22 practices were found to be new or less known (Jain, 1991; Kirtikar and Basu, 2003). Some species with similar usage recorded elsewhere are: *Momordica charantia* by the rural people of Satna district of Madhya Pradesh (Dwivedi *et al.* 2005); *Brassica juncea*, *Euphorbia tirucalli*, *Ficus benghalensis*, *Jatropha curcas*, *Semecarpus anacardium* by the Pawara, Bhil, Konkani, Tadvi and Vanjari tribes in Jalgaon district, Maharashtra (Pawar and Patil, 2006); *Azima tetraantha*, *Calotropis gigantea*, *Cryptolepis buchanani*, *Dichrostachy scinerea*, *Ficus microcarpa*, *Ocimum tenuiflorum*, *Plumbago zeylanica*, *Pueraria tuberosa*, *Ricinus communis*, *Sterculia urens*, *Tephrosia purpurea*, *Terminalia chebula*, *Urena lobata*, *Woodfordia fruticosa* by the Gadaba, Jatapu, Kondadora, Kuttiya, Savara and Yerukula tribes of Srikakulam district, Andhra Pradesh (Naidu *et al.* 2008); *Madhuca longifolia* and *Toddalia asiatica* by the local people of 10 districts of southern region and one district of northern region of Karnataka (Shiddamallayya *et al.* 2010); *Ricinus communis*, *Semecarpus anacardium*, by the tribes Gond, Kol, Baiga, Panica, Khairwar, Manjhi, Mawasiand Agaria of Rewa district, Madhya Pradesh (Shukla *et al.* 2010); *Amaranthus spinosus*, *Calotropis gigantea*, *Semecarpus anacardium*, *Urena lobata* by the Chakma, Marma, Tripura tribes residing in the Chittagong Hill tracts, Bangladesh (Biswas *et al.* 2010); *Calotropis gigantea*, *Plumbago zeylani-*

ca, *Tinospora cordifolia* by the Kanikkars of Western ghats of Tamil Nadu (Sutha *et al.*, 2010); *Jatropha curcas* and *Ricinus communis* by the ethnic groups in Assam (Nath *et al.*, 2011); *Azima tetracantha*, *Calotropis gigantea*, *Jatropha curcas*, *Madhuca longifolia*, *Plumbago zeylanica*, *Pueraria tuberosa*, *Semecarpus anacardium*, *Sterculia urens*, *Vetiveria zizanioides* by the Gadaba, Goudu, Jatapu, Kondadora, Mannedora, Mukhadora, Savara and Yerukula tribes of Vizianagaram district, Andhra Pradesh (Naidu *et al.*, 2012) and *Dichrostachys cinerea*, *Euphorbia tirucalli*, *Ricinus communis* and *Tinospora cordifolia* by the Gond, Kondareddi, Koya, Lambada, Nayak, and Yerukula tribes of Khammam district of Andhra Pradesh (Manjula *et al.*, 2013). It is well established that identical use of the same plant by different tribes in different parts of the globe indicate its established curative property and therapeutic significance.

Conclusion

Rheumatoid Arthritis, an autoimmune disorder is a major health challenge worldwide, and allopathic medicine has not been successful in finding long lasting relief. Many plant species are traditionally used for the treatment of pain and some have been investigated for their efficacy with positive results. An often-limiting factor to these investigations is lack of comprehensive ethnobotanical data to help choose plant candidates for potency/efficacy tests. The information give some leads for future targets for further analysis in order to develop new drugs. However, more detailed scientific studies are desperately needed to evaluate the efficacy and safety of the remedies employed traditionally.

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