Medicinal Uses of Rice Field Weeds of Orissa

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This paper deals with medicinal value of 35 weed species under 33 genera belonging to 24 angiospermic families collected from different rice ecosystems of Orissa. In the enumeration, the correct botanical name of each species along with basionyms occurring in the Botany of Bihar and Orissa and family name, vernacular name, locality of collection, phenology, habit and medicinal uses are reported.

Key words: Medicinal Value, Orissa, Rice Ecosystem, Weed Species

Weeds have been treated as obnoxious or unwanted plants growing in the places where they are not required. On one hand, they are harmful by heavily affecting the crop yield causing hindrance for achievement of crop targets. On the other hand, many of the weed species have ethno-botanical importance in general and traditional medicinal value in particular. Orissa is phytogeographically diverse terrain of tribal and various ethnic groups, which are the rich source of ethno-botanical information (Saxena & Dutta, 1975). Whereas, studies on ethnobotany of rice field weeds were not attempted so far and no comprehensive account, especially on the traditional medicinal value of the weed species occurring in rice ecosystem is available.

Some of the notable ethno-botanical studies have been conducted in Orissa by Choudhury (1963); Yoganarasimhan *et al.* (1970); Saxena and Dutta (1975); Dash, (1979); Sharma *et al.* (1985); Subudhi & Choudhury (1985); Murthy *et al.* (1986); Das & Kant (1988); Brahman & Saxena (1990); Mishra (1990) Mukherjee & Namhata (1990); Pradhan *et al.* (1990); Aminuddin & Girach (1991); Satapathy & Panda (1992); Girach (1992); Choudhury *et al.* (1993); Girach *et al.* (1993), and Dash *et al.* (1994).

The survey of literature shows that considerable work has been done on floristic studies in Orissa. But ethno-botanical studies in general and medicinal uses of rice field weeds in particular is meagre and fragmentary. Realising this, a survey was undertaken under the auspices of National Bureau of Plant Genetic Resources (NBPGR) Base Centre, Cuttack. Consequently 35 rice field weeds having ethno-botanical value were collected from different rice ecosystems of Orissa. These species were properly identified and housed in the herbarium of NBPGR Base Centre, Cuttack, Orissa.

The present attempt is therefore, a comprehensive account of information on the treatments prevailing in tribals, rural and urban poor dominated places with rice field weeds of Orissa to enrich the traditional systems and to document the information. In the present investigation, relevant information was collected from earlier contributions in this direction by Pattanaik (1956), and Subudhi and Dikshit (1998). The plants were collected from rice ecosystem of various regions of Orissa covering all the seasons. The herbarium specimens were prepared according to standard methods (Jain and Rao, 1976) and specimens were identified with the help of local flora by Saxena and Brahmam (1994).

The information were gathered from local vaidyas, tribals, rural and urban poor and experienced old people in different localities. The authors approached the informants with live plants within their area and in few cases, the same was done with herbarium sheets also. The details about the mode of preparation, methods of administration, doses and composition of drugs were recorded and the medicinal value of the species has been confirmed by as many cross checkings as possible.

The present study includes medicinal use of 35 weed species spread over 33 genera and 24 angiospermic families collected from rice ecosystem of Orissa. The botanical names of the plants have been arranged in alphabetical order followed by angiospermic family, vernacular name (Oriya), phenology, habit and medicinal practices by local populace and herbalists in Orissa. The herbarium specimens were deposited in the Herbarium of National Bureau of Plant Genetic Resources, Base Centre, Cuttack.

Enumeration of the Plant Species

Achyranthes aspera *L. (Amaranthaceae); Apamaranga; September-December; Erect, annual herb*

Juice of the plant (1-2 tsp.) in a cup of luke warm

water (twice daily) at bed time is used as an anthelmintic. Dry ash of the plant mixed with water thoroughly and filtered and then boiled till the deposition of some solid or semi-solid mass in the bottom. One-two spoons of the mass is taken for a month to cure tumour in stomach. Gargling in morning and evening with decoction of root is useful in relieving toothache, stomach pain and given to women after menstrual period for antifertility (1 tsp. for seven days on empty stomach). The paste of fruits and seeds applied in venomous insect bite. Root paste is administered twice a day for 3 days to stop excess bleeding during menstrual period. Leaves grinded with saffron and juice is extracted and applied as eye drop for opacity of cornea. The spike of the said plant and leaf of *Plumbago zeylanica* is ground to paste and administered as a contraceptive.

Aerva scadens *Wall (Amaranthaceae); Jatajatia; October to December; Erect, scandents herb*

Leaf juice (2 tsp.) with a glass of water everyday in morning used in jaundice. Root paste is used in toothache and pyorrhoea. Cooked young leaves is given to females for reducing pain after delivery.

Alternanthera sessilis *(L.) R. Br. ex DC. (Amaranthaceae); Madaranga; July to October; Prostrate ascending herb*

The juice of the root (2 tsp. thrice a day) is given to women after delivery to reduce pain. Leaf juice is applied externally to children suffering from measles. Juice extracted from the entire plant is used in purifying blood.

Ammania baccifera *L. (Lythraceae); Bilalabanga; August to December, Erect, Glabrous herb*

Juice of entire plant used as hypotensive and is a good source of Vitamin-C. 1-2 tsp. in empty stomach relieves common cold and throat problem. Warm decoction of the plant is applied in spinal cord infection to get rid of pain.

Blumea lacera *(Bum. F.) DC. (Asteraceae); Pokasunga; February to May; Erect, perennial, aromatic herb*

Leaf juice (2-3 drops) after little warming is dropped into the ear to get relief from otarrhoea and earache. Grinding the roots with black pepper used in sores of mouth. Juice of the plant (2 tsp. 2-3 times) is taken to cure bronchitis and burning sensation.

Boerhaavia diffusa *L. (Nyctaginaceae); Puruni; February to March; Prostrate herb*

The decoction of the entire plant is applied in inflammation of any part of the body. Juice of root and leaf is applied in eyelid as 'kajal' to get relief from eye infection. Young leaves and fruits ground with ginger are used in asthma. Roots and leaves of the plant crushed with roots of *Hybanthus enneaspermus* are administered in snake bite (paste is applied in the wounds).

Centella asiatica *L. (Apiaceae); Thalkudi, July to October, Prostrate herb*

Leaf juice rubbed in forehead to alleviate severe headache. Whole plant is eaten (raw/cooked) as antidote in snake or venomous bite. Decoction of entire plant is used as brain tonic, diuretic and in dysentery. Devouring young leaves in daily morning accelerates nervous activity, cures bowel complaints, increases memory power. Leaf is ground with coconut oil and applied in skin diseases.

Cleome viscosa *L. (Capparaceae); Anasorisa; August to October; Erect, annual herb*

Leaves and seeds are ground with water and taken (1-2 tsp. twice a day) to get relief from bodyache and joint pain. Dry powder of seed is used as anthelmintic and carminative. Leaf paste is applied externally on warts and sores.

Commelina benghalensis *L. (Commelinaceae); Kanasiri, August to December; Decumbent-ascending, annual herb*

Leaf decoction is applied in wounds of leprosy. The rhizomes are made into paste and taken for energy. The herb is laxative and emulcent.

Cynodon dactylon *L. (Poaceae); Dubaghasa; August to September; Stoloniferous herb*

Juice of the plant is used in cuts and wounds. Infusion of leaves is used in bleeding piles. Leaves ground with raw rice and tender sal leaves is used as tonic. 2 tsp. of leaf juice is given to children to check vomiting. Juice extracted from leaves administered daily in the morning for diabetes. The fresh juice or paste of leaves is applied locally in rheumatism.

Cyperus iria *L. (Cyperaceae); Swanti; August to September; Annual, tufted grass*

Decoction of the plant is used as tonic. 2-3 tsp. of juice with little water in morning is used as stomachic and aperient. The juice (2 tsp. 2-3 times a day) is administered in diarrhoea.

Cyperus rotundus *L. (Cyperaceae); Mutha; August to October, Rhizomatous, perennial herb*

Dry powder of the rhizome mixed with honey is

administered (1 tsp. thrice a day) for cough, to quench thirst and also to cure dyspepsia, diarrhoea, dysentery. The paste prepared from rhizomes, black pepper and alum is applied in the wounds and 2-3 tsp. paste mixed with half litre of milk is administered in venomous bite.

Eclipta alba *L. (Asteraceae); Kesadura; July to November; Decumbent ascending herb*

A preparation obtained from young heads and bulb with coconut or sesame oil is used as hair tonic. Tender shoots with sesame oil is applied in elephantiasis. Roots are emetic and applied in ulcers and wounds. Leaf juice with honey is used in catarrh of children. Juice of entire plant is used in preparations for liver, skin and hair tonic. Plant is used in hepatic and spleen enlargement. Leaf juice with curd is taken orally 2-3 tsp. in the morning till cure of jaundice.

Euphorbia hirta *L. (Euphorbiaceae); Chitakutei; August to October; Erect, ascending annual herb*

Juice extracted from leaves and inflorescence (25ml.) mixed with a glass of milk and is administered to increase the secretion of breast milk in lactating mothers. Juice from fruit with a cup of lukewarm water in morning for seven days is used as abortifacient. The latex is applied on warts, pimples, corns and curse skin diseases. The decoction of various parts is used as ingredient in preparing medicines for cough, cold, colic and dysentery.

Euphorbia rosea *Retz. Obs. Bot. (Euphorbiaceae); Raktachita; August to November; Prostrate herb*

Seeds are made into paste and given at bed time as an anthelmintic. Leaf juice is also used as an anthelmintic.

Evolvulus aisinoides *L. (Convolvulaceae); Bichhamalia; October to December; Decumbent, ascending perennial herb*

Dry leaves and plants are made into cigarettes and smoked in chronic asthma and bronchitis. Leaf juice (2 tsp.) mixed with cow's ghee (5 ml. butter oil) for 21 days and is used in increasing memory and reducing fever. Leaves and coconut (endosperm) grinded, filtered and boiled to prepare oil. It is used to hasten hair growth. Decoction of leaves and roots is administered as brain stimulant.

Glinus oppositifolia *L. (Aizoacae); Pitasaga; February to August; Prostrate, glabrous herb*

Leaves as pot herb used in curing bowel ailments. It is stomachic, aperient. Juice with raw turmeric and castor oil applied externally in itches and other skin diseases.

Grangea maderas patana L. (Asteraceae); Painjari; January to April; Procumbent herb

The paste of the entire plant with little pepper mint is applied in the forehead to get relief from acute headache. Leaves are ground and slightly warmed and applied in bone fracture.

Heliotrapium indicum *L. (Boraginaceae); Hati sundha; July to October; Erect, annual herb*

Plant juice is used in severe cold and fever. Decoction of leaf is used in boils, wounds, ulcers and as an antidote to venomous insect sting. Dried seed powder with black pepper is administered for getting immediate relief from acute stomach ache.

Hybanthus enneaspermus *L. (Violaceae); Madanmast; Most part of the year; Erect; annual herb*

Dried plant parts crushed and made into powder. One tsp. of the powder with a glass of water in every day morning cures bowel complaints, whooping cough, involuntary ejaculation of semen and improves sex potentiality. Fruit paste is used in venomous insect sting. One tsp. juice extracted from entire plant with three tsp. of goat milk is administered for 30 days for impotency.

Hydrolea zeylanica *L. (Hydrophyllaceae); Languliya; Most part of the year; Erect, diffuse, sub-succulent herb*

Decoction of leaves is antiseptic and applied as poultice in cuts and wounds and neglected callous ulcers.

Ipomoea aquatica *Forssk. Fl. (Convolvulaceae); Kalama; July to October; Prostrate, trailing herb*

Juice is used as emetic in opium and arsenic poisoning. The plant is used as pot herb and considered useful for women suffering from nervous and general debility.

Leucas aspera *(Wild) Linl. Enum. Hort. (Lamiaceae); Gayasa; October to April; Erect herb*

Juice of leaves applied externally in psoriasis and skin diseases. Decoction of roots applied in painful swellings of rheumatism. Inflorescence boiled with cow's milk is used as anthelmintic. Juice with black pepper (7 seeds) is used in venomous bites. Juice extracted from seven nos. of flowers and mixed with honey (1-2 tsp.) and given 2 times for 3 days to clear cough and cold. Gargling with decoction of root and bark of the plant in little lukewarm water cures pyorrhea. The paste of the plant

applied externally to relieve headache.

Lippia geminata *H.B.K. Nov. Gen. (Verbenaceae); Naguari; March to December; Erect, aromatic herb*

Leaf juice (1-2 tsp. for seven days) is used as anthelmintic and stomachic. Juice of roots is applied and administered in snake bite.

Ludwigia perennis *L. (Onagraceae); Bila labanga; October to January; Erect herb*

Juice extracted from leaves is given for reducing high body temperature due to fever. Decoction of entire plant is applied in painful swelling due to sprain.

Mimosa pudica *L. (Mimosaceae); Lajakuli; September to December; Prostrate to scandent, annual/perennial herb*

The root is ground with garlic and mixed with ghee is administered for chronic asthma. Dried powder of leaf mixed with ghee is used for healing wounds. Roots are considered strong snake repellant. Leaves decoction is taken for treatment of dysentery and root juice (5ml.) with water administered for 3-4 days as diuretic. Tender leaves is given to woman after delivery for relieving abdominal pain.

Passiflora foetida *L. (Passifloraceae); Bisripi; April to May; Slender, climber*

Decoction of leaves is administered in biliousness and asthma. Leaf crushed or ground and applied on the affected portion of the forehead to get relief from severe headache. Leaf powder mixed with milk and given at bed time for increasing memory power.

Phyllanthus niruri *Muel.-Arg. Linnaea (Euphorbiaceae); Badi aonla; April to June; Erect, annual herb*

The plant is ground and taken orally in the morning for 15 days to cure jaundice. The fruits/seeds crushed with aniseed is administered as aperient.

Physalis minima *L. (Solanaceae); Tiparikoli/Phutka; August to January; Erect herb*

Juice extracted from stem and leaf mixed with salt is administered in stomach pain and bowel complaint. Juice (25 ml.) taken orally in the morning (regularly) reduces the blood pressure.

Polygonum plebeium *R. Br. (Polygonaceae); Muthisaga; February to June, Prostrate, annual herb*

Leaves fried and taken for reducing body temperature. Leaves of the plant with other two species viz., *Morniga oleifera* and *Ipomoea aquatica* is fried and taken regularly for increasing vision power.

Portulaca oleracea *L. (Portulacaceae); Bada bal-balua; July to September; Erect, aromatic herb*

Regularly consumed as leafy vegetable, cures liver diseases. Leaf juice is applied to get relief from prickly heat.

Rungia pectinata *(L.) Nees in DC. (Acanthaceae); October to January; Decumbent, ascending, perennial herb*

Juice extracted from leaf is externally applied to children suffering from small pox to get relief from pain and burning sensation.

Scoparia dulcis *L. (Scorphulariaceae); Chira rita; September to November; Erect, Perennial herb*

The crushed leaves and roots are anti-emetic. The plant juice (2 tsp.) with a glass of water in the morning (empty stomach) is administered to cure jaundice, high fever. The juice is applied on forehead to get quick relief from severe headache.

Sida cordata *(Burm.) Borssum in Blumea. (Malvaceae); Bajramula; May to August; Decumbent, ascending, annual herb*

The plant crushed, filtered and mixed with 1 tsp. of sugar and regularly taken for one month in impotency. The decoction of leaf and root is applied as poultice for early healing of cuts and bruises. The juice of leaf is applied in venomous bite.

Solanum nigurm *L. (Solanaceae); Kanta bheji; February to July; Erect, aromatic herb*

Dried fruit powder is smoked in a cigarette to cure pharyngitis and acute toothache. Decoction of plant is used as enema in infants. Infusion of seeds and roots is administered orally in cough and cold. 2-3 tsp. of tender leaf juice twice a day for three to five days is given for getting relief from colic pain and the same is administered for 10-15 days to treat leucorrhoea in women.

Trianthema portulacastrum *L. (Aizoaceae); Puruni; July to December; Succulent, prostate herb*

Leaves ground with musk, saffron and pepper, given orally in scours; decoction of plant taken orally for rheumatism.

Tridax procumbens *L. (Asteraceae); Bisalay karani; Most part of the year; Prostrate, annual herb*

Leaf juice and powder are antiseptic and used in healing wounds. Fresh juice extracted from leaf is applied on cuts and wounds to stop bleeding. Juice of crushed leaves with decoction of flowers of *Hibiscus rosa-sinensis* applied for hair growth.

Vernonia cinerea *L. (Asteraceae); Badi pokasunga; Most part of the year; decumbent, ascending, annual/perennial herb*

Fresh juice and paste of seeds in lukewarm water is taken before bed time (for 2-3 days) after taking 1-2 tsp. sugar is found effective against round worm and thread worm. Plant juice with turmeric powder/paste is applied in affected parts for curing piles.

Conclusion

Rice field weeds were grossly ignored on ethanobotanical notes. The present study accounts for 35 rice field weeds used as herbal remedies by the local people for about 40 ailments. Out of them, 6 species are used for healing wounds, 5 species are found useful in common cold and cough, 6 species for venomous insect and snake bite, 8 species used as analgesic in joint pain and bodyache, 5 species are used in skin diseases and 2 species are related to various problems of women. The usage of a particular plant for the treatment of a number of diseases and a number of plants for the treatment of a particular disease has been observed in the present investigation.

Apart from this, the ailments like piles, diabetes, jaundice, blood pressure, pyorrhoea, rheumatism etc. are being treated effectively with the weed species. Based on their potential properties, further investigation can be attempted for conservation, phytochemistry and biological analysis. The present study on this aspect yielded interesting and important information which provide a lot of scope for further micro level studies to understand the scientific base involved in the use of crude drugs. The first hand information received from the local vaidyas, naturopaths, elderly knowledgeable people on the healing properties of the rice field weeds has been highlighted in this paper. All these plants are available locally and are being used by the local people as herbal remedies. Thirty five commonly used plants were collected, identified and verified with a number of uses.

The documentation of traditional knowledge based on the ethno-medicinal value of the plants and their use is an important step in safe-guarding and conserving the weed diversity. Moreover, attempts should be made to authenticate and evaluate the efficacy and medicinal value of those plants and products used by the ethnic groups.

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References

Aminuddin RD Girach (1991) Ethnobotanical studies on Bondo tribe of District Koraput (Orissa), India. *Ethnobotany* **3:** 15-19.

Brahmam M and HO Saxena (1990) Ethnobotany of Gandhamardan hills: some noteworthy folk-medicinal uses. *Ethnobotany* **2:** 71-79.

Choudhruy BP, AK Biswal and HN Subudhi (1993) Enumeration of some potential medicinal plants in the district of Cuttack. *Bio Sci. Res. Bull.*11-16.

Choudhury B (1963) Traditional methods of treatment of disease among the Dhenkanal. *Adibasi* **5:** 35-40.

Das PK and R Kant (1988) Ethanobotanical studies of the tribal belt of Koraput (Orissa). *Bull. Medicoethnobot. Res.* **9** 123-128.

Dash P, KB Satapathy and M Brahmam (1994) Some interesting but less known phytotherapeutic uses from tribal pockets of Keonjhar District (Orissa). *Pl. Sci. Res.* **18:** 44-45.

Dash SC (1979) Medicinal plants of Narasinghanath hills (Sambalpur) *Proc. Orissa Bot. Soc.* **4:** 6.

Girach RD (1992) Medicinal plants used by Kondh tribe of District Phulbani (Orissa) in Eastern India. *Ethnobotany* **4:** 53-66.

Girach RD, ZA Ali and Amir Abbas (1993) Ethno-medicinal uses of *Achyranthes aspera* L. in Orissa (India). *Int. J. Pharmacognosy* **30:** 113-115.

Jain SK and RR Rao (1977). *Hand Book of Field and herbarium Methods.* Today and Tomorrow's Publishers, New Delhi.

Mishra RC (1990) Ethanobotanical studies on some plants of Nrusinghnath-Harishankar Complex, Orissa. *J. Env. Sc.*11-20.

Mukherjee A and D Namhata (1990). Medicinal plantlore of the tribals of Sundargarh District, Orissa. *Ethnobotany* **2:** 57-60.

Murthy KS, PC Sharma and Prem Kishore (1986) Tribal remedies for snake bite from Orissa. *Ancient Sci. Life* **6:** 122-123.

Pattanaik H (1956) Some useful weeds in and around Cuttack. *J. Bomb. Nat. Hist. Soc.* **54:** 141-152.

Pradhan B, DD Jena and M Pradhan (1990) Ehtno-medicinal plant studies of Gandharmadan hills (Keonjar). *Proc. Orissa Bot. Soc.* **14:** 54-55.

Satapathy KB and PC Panda (1992) Medicinal uses of some plants among the tribals of Sundargarh. *J. Econ. Tax Bot.* **10:** 241-249.

Saxena HO and PK Dutta (1975) and Studies on the ethnobotany of Orissa. *Bull Bot. Surv. Ind.* 17 124-131.

Sharma, PC, KS Murty, AV Bhat, D Narayanappa and P Kishore (1985) Medicinal folklore of Orissa-I: Skin diseases. *Bull. Medico-ethnobot. Res.* **6:** 93-101.

Subudhi HN and BP Choudhary (1985) Ethnobotanical studies in the district of Phulbani (Orissa)-I. *Bio. Sci. Res. Bull.* 1 26-32.

Subudhi HN and N Dikshit (1998) Weed flora of rice fields in Orissa. *J. Econ. Tax. Bot.* **22** 737-739.

Yognarasimhan SN and PK Dutta (1970) Medicinal plants of Orissa: Plants in and around Bhubaneswar. *Nagarjun* **13:** 25-27.