Journal of Medicinal Plants Studies
www.PlantsJournal.com

ISSN (E): 2320-3862
ISSN (P): 2394-0530
www.plantsjournal.com
JMPS 2024; 12(2): 35-39
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Received: 13-01-2024
Accepted: 16-02-2024

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Ethnomedicinal uses of medicinal plants for the treatment of skin diseases by the tribal communities of Keonjhar district of Odisha, India

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DOI: https://doi.org/10.22271/plants.2024.v12.i2a.1650

Abstract
This paper deals with Ethnomedicinal uses of medicinal plants for the treatment of skin diseases by the tribal communities of Keonjhar district of Odisha in India. Ethnobotanical surveys and field investigations of medicinal plants have been under taken in different areas of Keonjhr district during the year 2021-2022. It has been observed that 40 species belonging to 39 genera and 31 families have been found to be used as traditional medicines by the local inhabitants for the treatment of skin diseases.

Keywords: Ethnomedicinal use, Skin diseases, Keonjhar district, Odisha.

Introduction
Keonjhar is a tribal district of Odisha, which is situated on the northern part of Odisha state of India. It covers an area of 8303 sq. km. Keonjhar is one of the tribal dominated districts present on the northern part of the state. It lies between 21°1′ to 22°10′ N latitude and 85°11′ to 86°22′ E longitude (Fig-1). The climate is sub-tropical, hot and dry in summer, dry and cold in winter. All the hills of this district are a part of the Eastern Ghats of India. Most of the district is covered with dense forest and a long range of hills which are home of wild animals like elephants, tigers, bears, hyena, deer and foxes. The forest in the region is mostly tropical mixed deciduous forest, tropical dry deciduous forest and tropical moist deciduous forest. May is the hottest-month of the year with mean daily maximum temperature of 44 °C, while the minimum temperature in December is 7^0 C. The average minimum and maximum temperatures are 11 °C and 38 °C respectively. The average rainfall of the district is 1534.5 mms. The tribe constitute about 45.4% of the total Population of the district and they mostly dwell in the forested area. Population density in the district is 188 persons per sq. km while for tribal density it is 84 persons per sq. km. The primitive knowledge of the wild plants and its parts are highly acknowledged by the global population. Majority population of the district is still using the traditional medicines involving different plants and plant parts for treatment of various ailments [1-5]. The available traditional knowledge regarding the use of medicinal plants for the treatment of various diseases is present only in oral form and is transmitted from generation to generation. However, this traditional knowledge is gradually diluted and diminishing because of the advent of modern civilization. Therefore, it necessary to collect and document of this knowledge before it is lost forever.
The state of Odisha in India is endowed with rich tribal Population and forest resources. Floristic and Ethnobotanical studies have been carried out in different districts of Odisha which provide much information regarding the ethnomedicinal uses of various plants and plant products [6-24]. These data has been authenticated by the phytochemical and antimicrobial study on various plants and plant products [25-26]. Nowadays skin problems in societies are increasing day by day. Skin problems like dark spot, white spot, different types of scabies, acne, fungal infections are common in different groups of people. Skin problems are wide spread in rural areas because of less hygienic conditions. The forest division of Keonjhar has rich vegetable wealth with potentially important medicinally useful plants. Some important tribal communities *viz* Juanga, Bhuyan, Santal, Kolha, Gond, Bathudi, Saunti, Sabara, Bhumija of this district have been utilising various plants and plant products for the treatment of various skin diseases. They have rich indigenous knowledge about the various plant groups, which are very useful to cure variety of skin diseases.

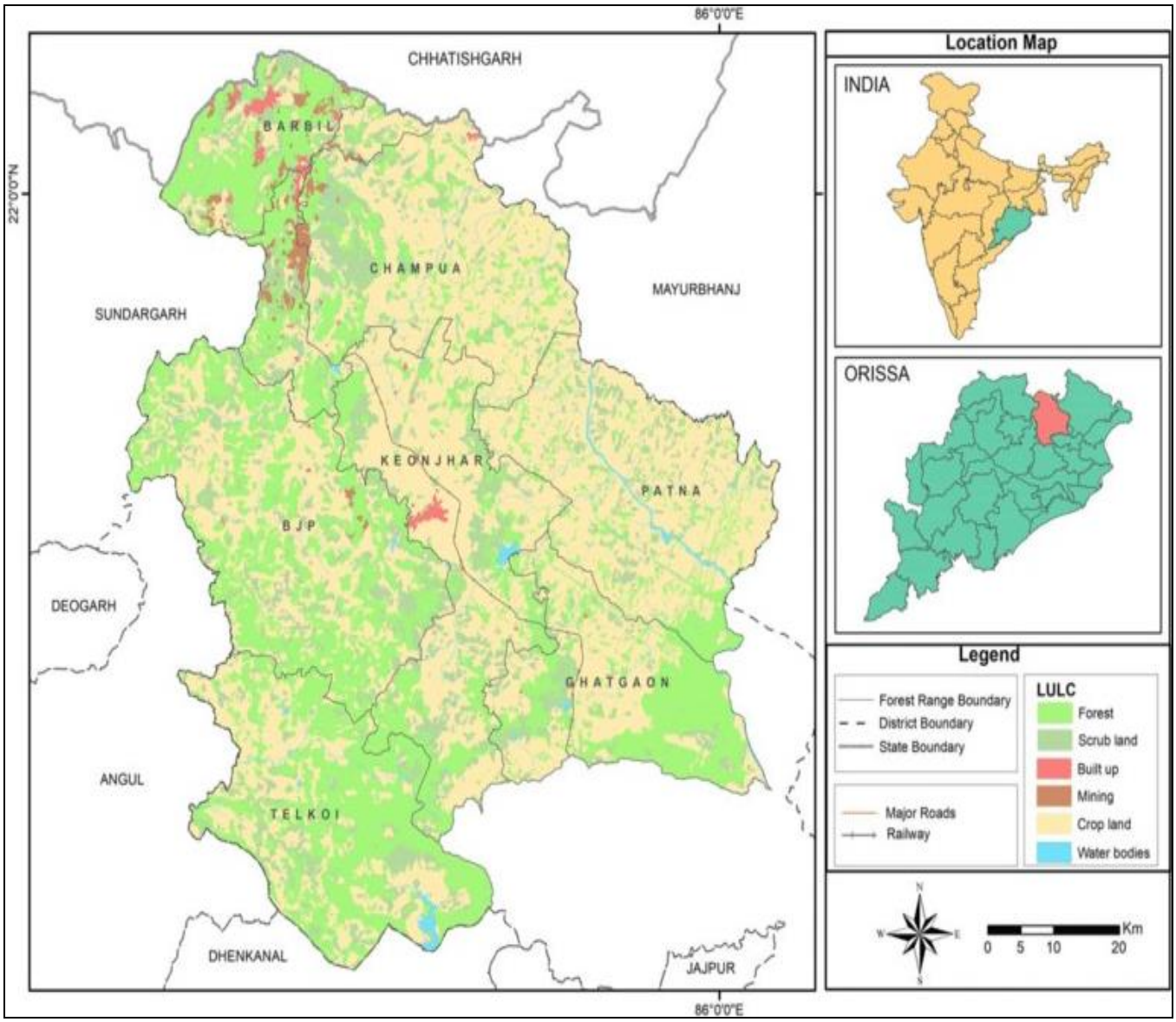

Fig 1: Map of Keonjhar district of Odisha

The present investigation has been carried out to document the traditional knowledge about the native medicinal plants, which are used to cure different skin diseases from various traditional healers and local forest dweller of Keonjhar district, Odisha.

Materials and Methods

Plant collection and preservation

Regular field trips have been conducted in different seasons of the year during 2017-2023 to various locations of the study region to know the distribution pattern and natural habitat of medicinal plants. The plant species collected have been identified with the help of regional flora books [27-28]. Herbarium samples have been collected from different locations of the study areas and the herbarium specimens have been prepared for future reference followings standard methods [29].

Method of data collection

The ethnobotanical data regarding the use of medicinal plants for the treatment of skin diseases have been collected from the local ethnic groups like Gond, Bathudi, Bhuyan, Santal, Kol, Juang, saunti and other forest dweller of Keonjhar in Odisha. The local elderly people with specialised knowledge on the medicinal plants have been consulted during the field survey. A number of group discussions have been done among the local people during the period of investigations. Experienced older people, local medicinal practitioner like Baidya, Kabiraj and Gunia have been interviewed for the first hand information on Ethnomedicinal uses of plants. The collected data have been verified by criss-cross checking method to confirm the authenticity of the information regarding the use, mode of administration and dosage differences of the herbal materials for the treatment of skin diseases.

Results and Discussions

The study reveals the uses of 40 angiosperm plant species under 31 families for the treatment of different skin diseases (Table-1). The herbal medicines are mostly administered in the form of juice, paste or powder prepared in a crude method from different plant parts such as root, bark, leaves, latex, seeds or whole plant etc. Most of the plants used in traditional medicines are either mixed with other ingredients or single.

Table 1: List of plants used for the treatment of skin diseases by the tribal communities of Keonjhar district of Odisha

SL No.	Botanical Name	Local Name	Family	Mode of Application
1	*Achyranthes aspera* L.	Apamaranga	Amaranthaceae	Leaf juice or whole plant paste with normal salt is applied on the affected area to cure ringworms, scabies, itches, eczema and other skin diseases. Leaf extract with camphor is applied on face to clear acne. Root paste with coconut oil is applied to cure crustose scabies.
2	*Aegle marmelos* L.	Bela	Rutaceae	Mature old leaf paste is applied in and around the affected part to cure injuries due to burn and insect bite. It is repeated for 3 to 4 days for better result.
3	*Ageratum conyzoides* L.	Pokasungha	Asteraceae	Leaf juice extracted from mature fresh leaves is applied to cure boils, itches, abscess and minor cuts. Fresh leaf paste also gives best result.
4	*Aloe Vera* (L.) Burm F.	Ghee Kuanri	Liliaceae	Raw leaf juice is used to cure acne and blackheads of face. Dry root powder with *Azadirachta indica* A Juss seed oil is applied to cure itching and scabies in the affected area.
5	*Andrographis paniculata* (Burm. F.) Wall. ex. Nees	Bhuinimba	Acanthaceae	Whole plant extract is taken orally or paste with fresh turmeric is applied to cure fungal infection, itching and inflammation.
6	*Annona squamosa* L.	Bharada/Ata	Annonaceae	Leaf juice or Paste is applied on the affected area to cure itches, scabies, abscess and rashes.
7	*Aporusa octandra* (Buch.-Ham. ex D. Don) Vickery	Masania	Euphorbiaceae	Fresh stem bark juice or paste is applied to the affected parts to cure abscess, itches and minor cuts and wounds. Apply two times daily gives best result.
8	*Argemone mexicana* L.	Odashamari	Papaveraceae	Fresh whole plant paste is used externally to cure ringworm, scabies and itches. Dried whole plant powder mixed with seed oil of *Madhuca indica* Gmel.is applied locally to cure toe crack and rashes on skin.
9	*Azadirachta indica* A Juss.	Nimba	Meliaceae	Fresh leaves are put in the bed for quick reliving from chicken pox and measles. Fresh leaf and bark mixed with seed oil is applied on the affected area to cure itching, scabies and abscess. Oil lamp is used to remove mosquito form home.
10	*Bauhinia vahlii* Wt. & Arn.	Siali	Caesalpiniaceae	Mature leaf paste is applied to cure pimples on the face and improvement of damaged skin.
11	*Bauhinia variegata* L.	Kanchana	Caesalpiniaceae	Root and bark paste is used to cure varieties of skin diseases. Treatment for 10 days provides a best result.
12	*Bombax ceiba* L.	Simili	Bombacaceae	Fresh root is grinded with water to make a soft paste and applied on the affected parts to get relief from pain due to boils.
13	*Carica papaya* L.	Amrutabhanda	Caricaceae	Latex is collected and kept in the open sunlight to get a semi sticky like liquid material. This is then applied in and around of the affected area to cure itches and scabies
14	*Cascabela thevetia* (L.)Lippold	Kaniara/ Kaniari	Apocynaceae	Fresh fruit or bark paste is applied daily for one week to cure abscess and itches.
15	*Cassia sophera* L.	Chakunda	Caesalpiniaceae	Paste of seed and fresh bark mixed with cow urine is applied locally to cure leprosy. Continuous use for one month gives best result.
16	*Clitoria ternatea* L.	Aparajita	Fabaceae	Root paste mixed with seed powder is applied affected area for curing of leprosy.
17	*Curculigo orchioides* Gaertn.	Taligajura	Amaryllidaceae	Rhizome power with curcuma is taken to cure dark spot on skin and other skin problems.
18	*Curcuma longa* L.	Haladi	Zingiberaceae	Fresh rhizome paste with seed oil of *Azadirachta indica* A Juss. is applied locally to cure pimples, dark spot on skin, itching and scabies.
19	*Cuscuta californica* Hook & Arn.	Nirmuli	Convolvulaceae	Dry whole plant powder mixed with *Pongamia pinnata* (L.) Pierre seed oil is applied locally on the affected area for curing of scabies, eczema and etching skin.
20	*Dendrocalamus strictus* (Roxb.)Nees	Salia Baunsha	Poaceae	Fine powder prepared from dried leaves, outer layer of stem and root is applied on the wounds, cuts and itching skin for fast recovery.
21	*Euphorbia hirta* L.	Chitakuti	Euphorbiaceae	Stem juice or plant paste is applied on affected area for the treatment of itches, abscess, boil, white spot and scabies. Two week treatment gives a very good result.
22	*Ficus racemosa* L.	Dimbiri	Moraceae	Seed oil mixed with *Azadirachta indica* A. Juss bark is used for treatment of eczema. Three week treatment gives a noticeable result.
23	*Gmelina arborea* Roxb.	Gambhari	Verbenaceae	Fresh leaf juice is applied in the affected area to cure itching, scabies and skin inflammation.
24	*Hygrophila auriculata* (Schum.) Heine	Koilikhia	Acanhtaceae	Dry leaf powder mixed with seed oil of *Madhuca indica* Gmel is used to cure rashes, itchy skin and toe crack.
25	*Holarrhena pubescens* (Buch-Ham) Wall.ex G.Don	Kuruchi	Apocynaceae	Fresh leaf and bark mixed with *Pongamia pinnata* (L.) Pierre seed oil is applied locally to cure itching, inflammation and scabies.
26	*Lawsonia inermis* L.	Mehendi	Lythraceae	Fresh leaf paste is applied externally to cure fungal infection and smoothness to dry skin.
27	*Madhuca indica* Gmel.	Mahula	Sapotaceae	Crude oil extracted from dry seed is applied locally to cure skin

				infection and gives smoothness to the crack of the toe.
28	*Martynia annua* L.	Baghanakhi	Pedaliaceae	Dry seed along with bark of *Dalbergia sisso* Roxb and *Pongamia pinnata* (L.) Pierre are taken in an earthen pot and heated to get extract. This extract is applied on affected area to cure eczema.
29	*Mimosa pudica* L.	Lajakuli	Mimosaceae	Dry leaf and stem powder mixed with seed oil of *Azadirachta indica* A Juss is applied locally over eczema and etching skin for fast recovery.
30	*Marsilea quadrifolia* L.	Sunusunia	Marsileaceae	Fresh whole plant paste is used for curing of toe crack and etching skin.
31	*Michelia champaca* L.	Champa	Magnoliaceae	Leaf and stem bark mixed with coconut oil is applied for curing of dandruffs and other skin diseases.
32	*Momordica charantia* L.	Kalara	Cucurbitaceae	Dry leaf powder mix with *Azadirachta indica* A Juss seed oil is applied to cure itches, scabies and eczema. Fresh leaf paste mixed with fresh turmeric is applied to cure different skin diseases.
33	*Moringa oleifera* Lam.	Sajana/Sujuna	Moringaceae	Fresh Leaf paste is used to cure pimple, itching on skin and infection due to Arthropods.
34	*Ocimum sanctum* L.	Tulasi	Lamiaceae	Fresh leaf paste is used to cure itching skin.
35	*Pergularia daemia* (Forssk.) Chiov.	Utali	Asclepiadaceae	Leaf and root boiled with water and applied on whole body to cure etching, scabies and rashes on skin.
36	*Phyllanthus niruli* L.	Bhuin Anla	Euphorbiaceae	Fresh whole plant with fresh turmeric paste is applied locally to cure different skin diseases like scabies, eczema, itching and inflammation on the skin.
37	*Pongamia pinnata* (L.) Pierre	Karanja	Fabaceae	Oil extracted from seed is massaged on whole body to cure different skin diseases.
38	*Ricinus communis* L.	Jada	Euphorbiaceae	Seed oil mixed with fresh turmeric and dry bark powder of *Azadirachta indica* A Juss is used externally to cure all types of skin diseases.
39	*Rouvolfia serpentina* (L.) Benth. ex Kurz	Patalagaruda	Apocynaceae	Fresh root and bark paste of *Rauvolfia serpentine* (L.) Benth. ex Kurz, *Andographis paniculata* (Burm.f.) Wall.ex.Nees and leaves of *Holarrhena pubecsens* (Buch.-Ham) Wall.ex G.Don is applied on affected parts to cure eczema, scabies, itches and boils.
40	*Streblus asper* Lour.	Sahada	Moraceae	Leaf paste mixed with Castor oil (*Ricinus communis* L.) or *Pongamia pinnata* (L.) Pierre oil is applied externally to cure eczema. Continue use of 20 days gives better result.

Conclusion

Tradition and beliefs are the only basis of use of the herbal medicines. It has been observed that most of the folk medicinal plants are duly reported in literature. However, their mode of application, ingredients and parts used are different. Therefore, the present study represents the existing folk uses of medicinal plants of the area investigated. The knowledge of this traditional healthcare system has been transmitted from generation to generation in oral form. Growth of urbanization and excessive mining activities in this area leading to Pollution as well as forest depletion affects adversely the life styles of the tribal population. As an outcome of such activities, the potential medicinal plants found in remote forests are disappearing at an alarming rate. As such, the conservation of these plant spices is an urgent need oh the hour for their sustainable utilisation as well as maintenance of ecological balance in this region.

Acknowledgement

Authors of this paper express their deep sense of gratitude for the support provided by the Centre of Excellence for Bio-resource Management and Energy Conservation Material Development established under the Odisha Higher Education Programme for Excellence and Equity (OHEPEE) for providing necessary research support. They also wish to express their gratitude to all the staff of Keonjhar and Anandpur Forest Division of Keonjhar district, tribal and local people for their help, cooperation and sharing valuable information during the ethnobotanical survey.

References

1. Rout S, Panda SP, Patra HK. Plants used as medicine by Juang tribes of Keonjhar district, Odisha, India. International Journal of Bioassays; c2015, p. 4511-4514.
2. Sen SK, Pattnaik MR, Behera LM. Therapeutic use of some Ethnomedicinal Plants of Hadagarh Wildlife sanctuary against diabetes by the Tribals of Keonjhar District, Odisha. World Journal of Pharmaceutical and Medical Research. 2021;7(8):243-246.
3. Dash P, Satapathy KB, Dash B. Ethnobotanical studies among Bathudi Tribes of the Keonjhar district, Orissa, India. E-Planet. 2003;1(2):21-26.
4. Devi U, Dwivedi H, Aminuddin, Khan H. Indigenous uses of Medicinal Plants of Keonjhar Forest, Odisha, India. Hippocratic Journal of Unani Medicine. 2015;10(3):109-122.
5. Patra D, Nayak RK. Indigenous knowledge and Ethnomedicinal uses of plants for the treatment of wounds by the forest dwellers of Keonjhar district of Odisha, India. International journal of Herbal medicine.2024;12(1): 44-47.
DOI: https://doi.org/10.22271/flora.2024.v12.i1a.920
6. Mudgal V, Pal DC. Medicinal Plants used by Tribals of Mayurbhanj (Orissa). Bull. Bot. Surv. India. 1980;22:59-62.
7. Aminuddin, Girach RD. Native Phytotherapy among the Paudi Bhuinya of Bonai Hills. Ethno botany. 1996;8:66-70.
8. Brahmam M, Dhal NK, Saxena HO. Ethnobotanical studies among the Tanla of Malyagiri hills in Dhenkanal district, Orissa, India. In: Jain, SK. (Ed.) Ethno biology in Human Welfare. Deep publications, New Delhi; c1996, p. 393-396.
9. Nayak RK, Nayak PK, Choudhury BP. Some medicinal weeds of Mahanadi Delta. J. Econ Tax. Bot. 2003;27(3):533-538.

10. Mohapatra SP, Sahoo HP. Some lesser known medicinal plants of the Kondha and Gond tribes of Bolangir, Orissa, India. Ethnobotanical leaflets. 2008;12:1003-1006.
11. Mohanty RB. New wild edible plants from some tribal pockets of Dhenkanal District, Odisha. Ethnobotany. 2010;22:113.
12. Ali ZA, Hussaini SA, Mukesh K. Traditional phytoremedies in Health care among the Forest Ethnics of Balasore District, Orissa. Hippo. J Unani Med. 2010;5(1):43-52.
13. Singh H, Srivastava SC, Krishna G, Kumar A. Comprehensive Ethnobotanical Studies of Sundargarh District, Orissa, India. In: Trivedi PC, (Ed.) Ethnic Tribes and Medicinal Plants. Jaipur Pointer Publishers; c2010, p. 89-106.
14. Mohanty N, Das PK, Panda T. Use of plant diversity in household and rituals by tribal people of Dhenkanal district, Odisha, India. Journal of Applied Pharmaceutical Science. 2011;1(4):79-82.
15. Girach RD, Aminuddin, Hussaini SA, Mukesh K. Ethnomedicinal studies on *Alangium salvifolium* (L.F.) Wang from Orissa. Hippo. J Unani Med. 2011;6(1):35-42.
16. Mund NK, Satapathy KB. Notes on the traditional use of plants to treat snake-bite in Kalahandi district of Odisha. Biohelica. 2011;2:15-20.
17. Mukesh K, Hussaini SA, Samiulla L, Kishore K, Khan SA, Aminuddin, *et al*. Ethnomedicinal Observations from the Anantprasad and Jeypur Tribal Villages of district Cuttack, Odisha, India. J.A.P. Science. 2012;2(11):127-130.
18. Kandari LS, Gharai AK, Negi T, Phondani PC. Ethnobotanical Knowledge of Medicinal Plants among Tribal Communities in Orissa, India. Forest Res. 2012;1:1-5.
19. Sahu CR, Nayak RK, Dhal NK. Traditional Herbal Remedies for Various Diseases Used By Tribals of Boudh District, Odisha, India for Sustainable Development. International Journal of Herbal Medicine. 2013;1(1):12-20.
20. Aminuddin Hussaini SA, Mukesh K, Samiulla L. Ethnobotanical Survey of Konark forests of District Puri, Odisha. Hippo. J Unani Med. 2013;8(2):83-89.
21. Sahu CR, Nayak RK, Dhal NK. Ethnomedicinal plants used against various diseases in Boudh district of Odisha, india. Ethnobotany. 2013;25:153-159.
22. Mukesh K, Hussaini SA, Aminuddin Shamshad A, Samiulla L. Ethnomedicinal Studies in Narsinghpur Forests of Athagarh Forest Division, District Cuttack, Odisha. Hippo. J Unani Med. 2013;8(2):99-107.
23. Sahu CR, Nayak RK, Dhal NK. Ethnomedicine and magico-religious belief of the Kondh tribe in Boudh district, India. Life Sciences Leaflets. 2013;11:10-22.
24. Mukesh K, Mokhtar A, Zakir M, Khan H, Kishore Kumar, Aminuddin Samiulla L. Ethnopharmacological Studies in Health Care Among the Tribals of Angul Forest Division, Odisha. Hippo. J Unani Med. 2014;8(2):99-107.
25. Behera SK, Nayak RK. Indigenous knowledge and phytochemical analysis of Potential medicinal plants of Kuldiha wildlife sanctuary in Odisha, India. Journal of Medicinal plant studies. 2023;11(4):94-98. DOI: https://doi.org/10.22271/plants.2023.v11.i4b.1574
26. Das R, Nayak RK. Ethnomedicinal uses, phytochemical analysis and antibacterial activity of *Hedychium coronarium* J. Koenig rhizome. International Journal of Herbal Medicine. 2023;11(1):01-05. DOI: 10.22271/flora.2023.v.11.i1a.846.
27. Haines HH, 1921-25. Botany of Bihar and Orissa. (Repr. 1961). Botanical survey of India, Calcutta. 1921-25.
28. Saxena HO, Brahmam M. The Flora of Orissa. Vol.1-4. Regional Research Laboratory and Orissa Forest Development Corporation Ltd. Bhubaneswar, Orissa. 1994-96.
29. Jain SK, Rao RR. A handbook of field and herbarium methods. Today and Tomorrow's Printers and Publishers, New Delhi; c1977.