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Ethnomedicinal plants used for the treatment of cuts and wounds by *Kuruma* tribes, Wayanadu districts of Kerala, India

Binu Thomas, Rajendran Arumugam, Aravindhan Veerasamy, Sivalingam Ramamoorthy*

Department of Botany, School of Life Sciences, Bharathiar University, Coimbatore 641 046. Tamil Nadu, Indai

PEER REVIEW

Peer reviewer

Prabhu Kumar KM, Scientist, Plant Systematics and Genetic Resources Division, Centre for Medicinal Plants Research Arya Vaidya Sala, Kottakkal.
E-mail: prabhumkrishna@gmail.com

Comments

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ABSTRACT

Objective: To study the ethnomedicinal uses by the *Kuruma* tribals for discovering new drugs to cure cuts and wounds so as to provid the data scientifically evaluated.
Methods: A survey was conducted during May 2008-September 2009 to collect information on medicinal plants used by the *Kuruma* tribes and queries were made on the various species of plants used regularly and occasionally to cure cuts and wounds.
Results: The present study includes information on 34 plant species belonging to 32 genera and 25 families used by *Kuruma* tribe of Wayanad district of Kerala for the treatment of cuts and wounds.
Conclusions: The present study of the knowledge on the folklore uses of the medicinal plants used by *Kuruma* tribes leads to effective utilization of herbal medicines in the future.

KEYWORDS

Ethnomedicine, *Kuruma* tribe, Cuts, Wounds, Wayanad, Kerala

1. Introduction

India has a rich tradition of plant-based knowledge on health care. A large number of plants, plant extracts, decoctions or pastes are equally used by tribals and folklore traditions in India for treatment of cuts and wounds[1]. Many tribal groups have been using several plant or animal products for medicinal preparations and these medicines are known as ethnomedicines[2]. Ethnomedicine may be defined broadly as the use of plants by humans as medicines, but these uses could be called, more accurately, as ethnobotanic medicine[3]. It is estimated that around 200 000 plant species are known all over the world. The World Health Organization has listed 21 000 plant species possesing medicinal properties in the world. In India about 2 500 plant species are used for medicinal purposes by traditional healers[4]. The uses of different parts of plants by the local people of the plains or hilly areas in different aspects have been studied by several workers[5].

Our country has a vast emporium of ethnobotanical and folklore wealth. The indigenous groups posses their own distinct culture, religious rites, food habit and a rich knowledge of traditional medicine[6]. Indigenous knowledge on natural resources utilization of medicinal plants not exceeding the resilience of the surrounding

*Corresponding author: Dr. Sivalingam, Ramamoorthy, Department of Botany, Bharathiar University, Coimbatore 641 046. Tamil Nadu, India.
Tel: +919442329968
E-mail: drsivar@gmail.com

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environment is regarded as an important measure of sustainable plant biodiversity conservation[7]. Medicinal plants have considerable global impact in recent years. Due to various human activities such as deforestation, rapid industrialization, urbanization and other developmental activities causing fast declining of both natural vegetation and traditional culture in India[8].

Kurumas are the dominant scheduled tribe community in Wayanad district. The principal occupation of the *Kuramas* was wood cutting and collection of minor forest products[9]. They live in huts with high foundations, mud walls, bamboo doors and strong roof thatched with grass and straw. They are mostly agricultural labours and some are cultivators. Common health problem faced by them are malnutrition, worm infections, skin diseases, diarrhoea, jaundice and fever[10]. Based on the information available, an effort has been made to study the ethno botanically important plants used by the *Kuruma* tribals of Wayanad district particularly to cure cuts and wounds.

2. Materials and methods

Wayanad district is situated in the Western Ghats region of Kerala with an altitude varying from 700 to 2 100 m sea level. Nilgiri and Mysore district of Tamil Nadu and Karnataka respectively bound it on the East, Coorg district of Karnataka on the North, Malappuram district of Kerala on the South and Kozhikode and Kannore district of Kerala on the West. Wayanad lies between 11°27′N and 15°58′N, and 75°47′E and 70°27′E.

Several field visits were conducted during May 2008–September 2009 to collect information on medicinal plants used by *Kuruma* tribes for curing cuts and wounds in their daily life activities. A survey was conducted among the *Kuruma* tribes, 25 were selected at random and interviewed. Queries were made on the various species of plants used regularly and occasionally to cure cuts and wounds. After collecting required data, the correct nomenclature was identified with the help of available literatures like Flora of Presidency of Madras[11], Flora of British India[12] and cross checked with the herbarium specimens deposited in the Herbarium of Bharathiar University, Coimbatore, Tamil Nadu.

3. Results

The present study includes information on 34 plant species belonging to 32 genera and 25 families used by *Kuruma* tribe of Wayanad district of Kerala for the treatment of cuts and wounds (Table 1). Most of the plant species grow naturally in different areas and their properties are important in traditional herbal medicine.

Table 1
Medicinal plants used by *Kuruma* tribe for the treatment of cuts and wounds in Wayanad District, Kerala.

Botanical Name (Vernacular Name)	Family	Parts used	Mode of administration
Agave cantula Roxb. (Kattahaalla)	Agavaceae	Roots	Root extract is applied on wounds
Aloe vera L. (Chirukatthaalla)	Liliaceae	Leaves	Fresh leaf paste is applied twice a day on wounds untill cure
Argemone mexicana L. (Piramathandu)	Papaveraceae	Leaves	Leaf paste is applied on boils and wounds twice a day till cure
Artocarpus heterophyllus Lam. (Plavu)	Moraceae	Latex	Extract of white latex is applied on wounds
Azadirachta indica A. Juss. (Vaeppu maram)	Meliaceae	Leaves	Leaves of *Azadirachta indica* along with leaf paste of bitter-gourd is applied on wounds
Ceiba pentandra (L) Gaertn. (Panjimaram)	Bombacaceae	Roots	Root bark paste is applied on burns and wounds
Chromolaena odoratum (L.) King and Robinson (Kuppa pacha)	Asteraceae	Leaves	Leaf juice and paste is applied in fresh cuts and wounds to stop bleeding and to relieve pain
Cissampelos pareira L. (Ponmutootai)	Menispermaceae	Roots	Root extract is applied to wound till the wound is healed
Cleome viscosa L. (Ellukkusakkalathi)	Cleomaceae	Leaves	Leaf paste is applied on wounds twice a day for three days
Commiphora caudata (Wight & Arn.) Engl. (Kiluvai)	Burseraceae	Leaves	Leaf juice is applied on wounds
Cyanodon dactylon L. (Arugampullu)	Poaceae	Whole Plant	Fresh plant paste is applied on bleeding wounds twice a day
Euphorbia hirta L. (Amampatchaiarisi)	Euphorbiaceae	Leaves	Leaf paste is applied on cuts and wounds
Hemidesmus indicus (L.) R.Br. (Nannari)	Asclepiadaceae	Roots	Root paste is applied on wounds
Hemigraphis colorata Blume. (Murukooti)	Acanthaceae	Whole Plant	The whole plant paste is applied on cuts and wounds
Ichnocarpus frutescens (L.) R.Br. (Paravalli)	Apocyanaceae	Leaves	Leaf paste is applied on cuts to stop bleeding
Leonotis nepatifolia (L.) R. Br. (Ranaberyri)	Lamiaceae	Inflorescence	Crushed inflorescence mixed with ground nut oil is applied on wounds

Table 1, continue

Botanical Name (Vernacular Name)	Family	Parts used	Mode of administration
Mangifera indica L. (Mavvu)	Anacardiaceae	Bark	The shade dried stem bark is burned into ash, and it is mixed with coconut oil and applied on wounds twice a day till it gets cured
Manihot esculenta Crantz. (Kappa Kizhangu)	Euphorbiaceae	Tubers	Tuber paste is applied on wounds
Melastoma malabathricum L. (Nakkukaruppan)	Melastomaceae	Roots	Root paste is applied on wounds
Mimosa pudica L. (Thotta vaadi)	Mimosaceae	Leaves	Leaf juice is applied on cuts and wounds
Morus alba L. (Muchukkataei)	Moraceae	Bark	Bark paste is used for wound healing
Morus australis Poir. (Tippilnaaval)	Moraceae	Latex	Milky latex of the plant is applied on wounds
Oxalis corniculata L. (Puliyaarila)	Oxalidaceae	Leaves	Leaf paste is applied on cuts and wounds
Pogostemon heyneanus Benth. (Kadirpacha)	Lamiaceae	Whole Plant	The whole plant is made into ash and it is mixed with mustard oil then applied on wounds
Sesamum orientale L. (Yellu)	Pedaliaceae	Whole Plant	The whole plant paste is applied on wounds.
Sida cordifolia L. (Nilattutti)	Malvaceae	Leaves	Leaf paste is applied on wounds
Sida rhombifolia L. (Chirtamutti)	Malvaceae	Leaves	Leaf and root paste is applied on cuts and wounds
Tagetes erecta L. (Talukka-samandi)	Asteraceae	Leaves	Fresh leaf paste is applied on wounds twice a day for 3-4 d to kill germs in wounds
Tinospora cordifolia (Willd.) Miers. ex Hook. f. and Thoms. (Sallaikkodi)	Menispermaceae	Roots	In case of bone fracture and wounds, the root paste is used externally and tied with bandage
Tridax procumbens L. (Vettukkaya)	Asteraceae	Leaves	Leaf paste is applied on wounds
Uraria picta Desv. (Sittirappaladi)	Fabaceae	Leaves	Leaf paste is applied on cuts and wounds twice a day
Viscum articulatum Burm. f. (Pulluri)	Loranthaceae	Whole Plant	The whole plant paste is applied over cuts and wounds
Xanthium indicum (L.) Koen. (Ottarachedi)	Asteraceae	Leaves	Leaf paste is applied on the wounds twice a day for three days
Ziziphus enoplia Mill. (Chooraimullu)	Rhamnaceae	Leaves	Leaf paste is applied on wounds

Therefore some plants are commonly cultivated for its use.The most common forms of preparing the crude drugs from plants are fresh juice, powder, paste and decoction. These traditional method of treatment based on medicinal plants are still an important part of their life. Among the different parts used by the *Kuruma* tribe, leaves constituted the major portion in medicine. In most of the cases, the formulation of medicine preparation is based on single drugs. The survey indicated that the study area was rich in medicinal plants useful to treat a wide spectrum of human ailments. The study also revealed that the tribal people of the area possess good knowledge of crude herbal drugs. Such studies may produce valuable information for phytochemists and pharmacologists to develop new drugs for various human ailments. The present study observes that the younger generation takes no interest for preserving the traditional skills and technology. This situation highlights the need for complete recording of their empirical knowledge for the benefit of the future generations.

A good number of plants in the present investigations were reported by many earlier investigators. The wound healing property of *Tridax procumbens* L. was confirmed through pharmacological studies by Mundada *et al*[13]. *Mimosa pudica* L. is a very good medicinal plant for wound healing and it was confirmed in albino wistar rats[14]. The wound healing activity of *Viscum articulatum* Burm. f. was proved through phytochemical screening by Najafi *et al*[15]. The wound healing activity of *Hemigraphis colorata* Blume. was also proved through bioprospecting methods by Subramoniam *et al*[16]. The plants like *Leonotis nepatifolia* (L.) R. Br., *Melastoma malabathricum* L., *Cleome viscosa* L., *Euphorbia hirta* L., *Tagetes erecta* L., *Oxalis corniculata* L. and *Ziziphus enoplia* Mill. were used among the various tribal communities of Southern India for wound healing purposes[17].

4. Discussion

The knowledge on the folklore uses of the medicinal plants leads to open up ways for effective utilization of herbal medicines in future. Future work in this direction may help to discover new drugs to cure cuts and wounds. Authors also hope that, this study may stimulate researches to take up similar investigations in other tribal areas of Kerala.

Conflict of interest statement

We declare that we have no conflict of interest.

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Comments

Background

The present study on medicinal plants used by *Kuruma* tribes especially for cuts and wounds is very useful for the young researchers those who are working in the field of pharmacology. This type of studies gives clues to pharmacologists for developing drugs for various ailments.

Research frontiers

In this paper the method of preparation of crude drugs and their application along with the botanical and vernacular names of the plant are given. It would be very useful for the preparation of crude drugs for cuts and wounds.

Related reports

A good number of plants in the present investigations were reported by many earlier investigators (Mundada *et al*., 2010; Najafi *et al*., 2010; Venkateswarlu *et al*., 2001 and Subramoniam *et al*.,2001).

Innovations and breakthroughs

The present study includes information on 34 plant species belonging to 32 genera and 25 families used by *Kuruma* tribe of Wayanad district of Kerala for the treatment of cuts and wounds. The Wayanad is rich with various medicinal plants. Among these the study on potential plants especially for the treatment of cuts and wounds is very appreciable.

Applications

This type of studies may produce valuable information for phytochemists and pharmacologists to develop new drugs for various human ailments. In addition, the ethno botanical data on crude drug preparation for the treatment of cuts and wounds is very applicable for both tribals and local people.

Peer review

The method of present study is a very effective way to collect diminishing traditional knowledge from aboriginal communities. In this regard publication of such valuable traditional knowledge is very appreciable.

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