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## Documentation of wound healing plants used by tribes of Nuapada District, Odisha, India

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**Abstract**

A wound (injury) is defined as a breakdown in the body tissue's structural integrity caused by both internal and external stress. Depending on the type of stress it is experiencing, the external or internal wound is split into closed wounds and open wounds. The goal of the current effort was to catalogue the various plants that the tribal people of Odisha's Nuapada district used to treat their wounds. An investigation on the potential for several plants to treat wounds was carried out in the tribal community of the Nuapada region of Odisha from March to July 2022. In this examination, wound qualities were found in 17 species that belonged to 14 groups. This study made it very clear that tribal people are educated about regional herbal treatments and use a more efficient and benign traditional technique of wound care. This foresees a new, more expansive platform for the future creation of ground-breaking medications.

**Keywords:** Wound, wound healing, medicinal plant, tribal people, Nuapada district, Odisha

**Introduction**

A wound (injury) is characterised as a break in the structural integrity of the body tissue brought on by both internal and external stress. The external or internal wound is divided into closed wounds and open wounds depending on the type of stress it is under.

The process of recuperation, which requires wound healing, is essential for life. Hemostasis, inflammation, proliferation, and remoulding are only a few of the biological subprocesses that make up the complicated biological process of wound healing.

Application of numerous pharmacological substances with chemical and synthetic origins speeds up the healing of wounds. Steroids such as Cortisone and Hydrocortisone, NSAIDS such as Aceclofenac, Ibuprofen, and Celecoxib, antiplatelet medications such as Aspirin and Clopidogrel, and anticoagulants (e.g. Heparin). However, these medications have a number of undesirable side effects, such as drug tolerance, stomach ulcers, allergic responses, and others, making it urgently necessary to find an alternate drug source. This opens the door for the traditional medical practises used in tribal and rural areas.

According to Mandal *et al.* (2020) <sup>[1]</sup>, there are 56 distinct species from 33 groups that are utilised to treat various skin conditions. Sen *et al.* reported in 2020 The 45 plant species found in 42 genera and 32 families in this research are used to treat wounds. Studies on the Wound Healing Activity of *Heliotropium indicum* Leaves on Rats are described in Dash *et al.* 2011 <sup>[3]</sup> Mishra (2016) <sup>[7]</sup> noted that tribes in the Koraput area of Odisha employed 43 plant species from 41 genera and 25 families to cure cuts and wounds. In rats, methanolic extracts of the leaves of *Crataeva magna* and *Euphorbia nerifolia* were shown to have wound-healing properties by Pattnaik *et al.* (2014) <sup>[8]</sup>. *In vivo* wound healing properties of *Ziziphus xylopyrus* are studied by Jena *et al.* (2012) <sup>[6]</sup>. In, Das *et al.* 2010 <sup>[7]</sup> evaluated methanolic, *Tecoma stans* Linn. Bark extract for albino rat wound healing.

In this present work there was an attempt had been made to document different wound healing plants used by tribal people of Nuapada district of Odisha.

**Material and Method****Study area**

The Indian state of Odisha is where Nuapada District is located. The district is situated in Odisha's western region. It is located between latitudes 20° and 21° 5' and longitude 82° 40' E. The districts of Bargarh, Bolangir, and Kalahandi in Odisha border Nuapada to the east, and the districts of Raipur in Chhattisgarh to the north, west, and south. The total size of this district is 3, 852 square kilometres. The current Nuapada District is made up of five Tahsils (Nuapada, Khariar, Komna, Boden, and Sinapali), five Blocks, and one subdivision (Nuapada) (Khariar, Sinapalli, Boden, Nuapada and Komna).

According to the 2011 Census, there are 1,44,299 rural households in the District as a whole. There are 99,465 BPL families overall in the 99,465 families, or 78% of the district's population, are classified as BPL. There are 131 G. Ps, 3 N.A. Cs, and 10 police stations, according to the government. The district's 82,159 total Scheduled Caste (SC) and 2,06,327 total Scheduled Tribe (ST) residents make up 13.46% and 33.80% of the total population, respectively. The district's forests are handled by the Khariar Division of the Forest Division. Sal forests, Teak forests, and other types of forests make up the majority of the district's woods. Other forest species include bamboo and teak. These are all located in an area of dry deciduous forest.

### Data collection

Data for this survey was acquired through conversations between locals and herbalists. Rural communities rely on woods and natural vegetation for their daily needs. The current study therefore concentrated on a number of villages in the Nuapada district of Odisha. They include Sunabeda, Gatibeda, Jhilmila, and Patora, among others. Between March and July 2022, data from the research area were gathered. An ethnobotanical Performa was created prior to the survey for our benefit. Prior to learning about the advantages of our survey, the local herbalists in the research area were reluctant

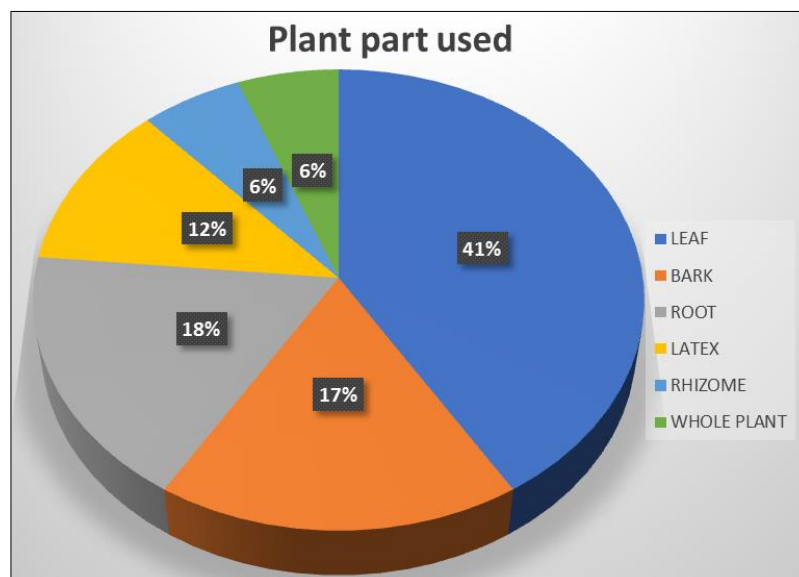
to offer their traditional knowledge, but after learning about our goals, they were willing to share their knowledge of plants that heal wounds. We gathered information from the informants' using questionnaires that included questions about the plant's local name, which plant components are used to treat different kinds of wounds, how to apply the treatment, and any necessary dosage. After that, information was gathered from the villagers' residents. There were 12 participants in this poll; 7 of them were men and 5 were women. Out of the 12, five were Kabiraj and the rest were elderly tribal members. The native language was used for all interactions (Sambalpuri). Local flora, various books, and apps like "Plantnet" were used to identify plant specimens.

### Result

From March to July 2022, a study was conducted in the tribal community of the Nuapada area of Odisha to examine the potential for various plants to treat wounds. 17 species belonging to 14 groups were discovered to exhibit wound properties in this investigation. Leaf (40% of the total data) is the plant portion that is used most frequently. The table-01 shows plants used by the indigenous inhabitants of Nuapada, Odisha, to treat wounds and graph -01 indicates percentage of plant parts used.

**Table 1:** Plants used by the indigenous inhabitants of Nuapada, Odisha, to treat wounds

S. No	Botanical name/Local name	Family	Plant parts used	Mode of application
1	<i>Aloe vera</i> (L.) Burm.f Gheekuanri	Asphodelaceae	Leaf-pulp	For speedy healing, leaf pulp is applied to cuts, bruises, and insect stings.
2	<i>Azadirachta indica</i> A. juss Neem	Meliaceae	Leaf	Leaf paste is applied on the wound.
3	<i>Anacyclus pyrethrum</i> L. Akarkara	Asteraceae	Root	Used for applying root paste to a pus-filled wound is recommended. For oral ulcers, the root's decoction is employed.
4	<i>Calotropis gigantea</i> L. Arakh	Apocynaceae	Root	For snake bite, root juice is given orally.
5	<i>Cantella asiatica</i> L. Brahmi	Apiaceae	Leaf	Used for applying leaf paste on burn wounds.
6	<i>Catharanthus roseus</i> L. Baramasi	Apocynaceae	Leaf	To treat a wound, a mixture consisting of leaves and turmeric powder is applied three times per day.
7	<i>Carica papaya</i> L. Amrutabhandana	Caricaceae	Latex	Latex is applied on the Eczema.
8	<i>Careya arborea</i> L. Kumbh	Lecythidaceae	Bark Flower	Bark powder is applied to the wound to promote rapid healing. Women are given the flower infusion mixed with honey to hasten the healing of wounds developed during delivery.
9	<i>Curcuma longa</i> L. Haldi	Zingiberaceae	Rhizome	Rhizome paste is combined with cow ghee and applied to the wound to dry it.
10	<i>Cyanodon dactylon</i> L. Dublata	Poaceae	Whole Plant	Used for applying whole-plant paste will stop the bleeding.
11	<i>Ficus benghalensis</i> L. Bar	Moraceae	Latex	To halt bleeding from unintentional wounds, latex is employed.
12	<i>Ficus religiosa</i> L. Pippal	Moraceae	Bark	Used for applying bark paste to the damaged areas can treat burns, toxic wounds, and bruising.
13	<i>Heliotropium indicum</i> L. Hatisand	Boraginaceae	Leaf	The decoction of leaves is applied to bug bites.
14	<i>Lawsonia inermis</i> L. Benjati	Lythraceae	Leaf	Leaf application externally Paste is used to treat herpes, ulcers, and wounds.
15	<i>Mimosa pudica</i> L. Lajkuli	Mimosaceae	Root	As a poultice, root paste is placed to the wound.
16	<i>Mimosops elengi</i> L. Baul	Sapotaceae	Bark	To treat all forms of oral ulcers, bark decoction is gurgled.
17	<i>Tridax procumbens</i> L. Bisalyakarani	Asteraceae	Leaf	Applying leaf paste to a new wound



**Graph 1:** Percentage of plant part used for wound management.

### Conclusion

The tribal people of Nuapada District, Odisha, employed 17 distinct plant species from 14 different families for wound treatment, according to the aforementioned documentation work. This study made it very evident that tribal people are knowledgeable about local herbal remedies and employ a traditional method of wound care that is more effective and has fewer negative side effects. This envisions a new, larger platform for the development of breakthrough drugs in the future.

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