Medicinal Plants Used to Cure Cuts and Wounds in Athur Region of Thoothukudi District in Tamil Nadu, India

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Abstract
An ethnomedicinal study was conducted to enumerate the medicinal plants used by the inhabitants for the treatment of cuts and wounds in Athur region of Thoothukudi district from January to February, 2020, among 9 key informants through a semi-structured questionnaire. Present documentation enumerates 28 species of medicinal plants belonging to 27 genera and 19 families used to cure cuts and wounds. Fabaceae (5 species) was found as the best-represented family. Trees were found maximum (14 nos., 50.0 %), leaves (56.76%) were the most preferable plant part, plant materials were mostly used in the form of paste (29.76%) and mostly (51.36%) applied topically. More ethnobotanical studies should be encouraged before the traditional knowledge of indigenous peoples vanishes.

Keywords: Medicinal plants, Cut and Wound, Athur region, Thoothukudi district, Tamil Nadu.

1. INTRODUCTION
WHO estimates around 2% of the world's population are currently disabled as a result of cuts and injury 1; about 1-2% in developed countries will experience a chronic wound in their lifetime 2. Although scant data on cuts and wounds are available for developing countries of Asia, such sufferings are a major health problem facing indigenous peoples. Medicinal plants have been reported to be very beneficial in wound care, promoting the rate of wound healing with minimal pain, discomfort, and scarring to the patient 3. Skin is the largest organ of the human body, as such plants showing dermatological properties and the ability to stop bleeding, and to heal wounds and burns are of great significance to human health 4. In this context, this study was conceived to document ethnomedicinal plants used by the local inhabitants of Athur region in Thoothukudi district, Tamil Nadu, for the treatment of cut and wound.

2. MATERIALS AND METHODS
2.1. Geographical data of the study area
The study area, Athur is one of the town panchayat of Thoothukudi district in Tamil Nadu. It is located at the bank of a historical river called Thamirabarani. Geographically, Athur is lying between 78.0824° E longitude and 8.6106° N latitude. The altitude of the study area is 3m above mean sea level. The temperature of the study area is about 16 – 40°C and annual rainfall reaches 85 mm.

2.2. Methodology
The present study was carried out in Athur and its surrounding areas from January to February, 2020. The informations on plants used as traditional medicine against cut and wound were collected by conducting direct interviews using a semi-structured questionnaire with local inhabitants. A total 9 peoples were interviewed during this study and it includes 6 men and 3 women. The age of the informants was ranged from 32 – 59. Interviews were conducted in Tamil language and the data were transformed into English. The plants were botanically identified by using regional floras 5,6 and authenticated as per APG IV classification 7.

3. RESULTS AND DISCUSSION
By this present investigation, a total of 28 plant species used for the treatment of various cuts and wounds were recorded (Enumeration). Among them, 6 plants were used to cure cut and 23 plants for wound. In case of wound healing plants, 5 species were used in the treatment of chronic wound, 3 species for common wound, 6 species for fire wound, 3 species for mouth wound, 7 species for throat wound and 7 for ulcerated wound (Fig 1).
The 24 plant species were belongs to 27 genera and 19 families. Fabaceae was found as dominant family with 5 species. It was followed by Euphorbiaceae (3 species), Lythraceae (2 species), Solanaceae (2 species) and Zingiberaceae (2 species). Rest of the remaining 14 families were recorded with one species each (Fig 2). In case of habits of the plants recorded, trees were found maximum (14 nos., 50.0%) than herbs (11 nos., 39.29%), climbers (2 nos., 7.14%) and shrub (1 no., 2.57%) (Fig 3, Enumeration).

The findings of the present study also reveals that leaves (56.76%) were the most preferable plant part used to cure cut and wound, followed by fruit and stem bark (10.82% each), tuber (8.10%), endosperm (5.40%) and, flower, flower bud and inner stem (2.70% each) (Fig 4). In most of earlier ethnobotanical studies conducted in various regions of Tamil Nadu confirmed that leaves are the preferable plant part used 8-15.
It was also noted the recorded plant species were prepared in a variety of ways. The plant materials were used as fresh in the preparation of paste (29.76%), powder (24.34%), cooked (8.10%), decoction (8.10%), extract (8.10%) and juice (8.10%). Burn, gray, oil, raw and vapour were the least mode of utilization of medicine (Fig 5). In case of administration of medicine, plant parts were mostly (51.36%) applied topically as a paste (Fig 6). These results were concordance with other ethnobotanical surveys conducted in nearby areas of present study sites, by which it was also confirmed that the use of medicines as pastes in the treatment of skin diseases including cut and wound 16,17.
4. ENUMERATION

In the following enumeration the plants were arranged alphabetically with their family name, local name, habit and medicinal use(s).

1. *Acalypha indica* L., Euphorbiaceae, Kuppaimaeni, Herb

Leaf extract is poured in the treatment of fire wound. Leaf paste is applied to heal common wound.

2. *Achyranthes aspera* L., Amaranthaceae, Naayuruvi, Herb

Leaf paste mixed with turmeric powder is applied on cut.

3. *Acorus calamus* L., Acoraceae, Vasambu, Herb

Tuber powder is applied on cut.

4. *Aegle marmelos* (L.) Corrêa, Rutaceae, Vilvam, Tree

Leaves are mixed with pepper and ground into paste. This paste is prescribed to drink along with milk to cure ulcerated wound. Inner part of fruit is eaten along with palm sugar in the treatment of ulcerated wound.

5. *Aristolochia indica* L., Aristolochiaceae, Perumarundhu, Climber

Leaf extract is boiled with castor oil and made into balm. This balm is applied for the treatment of chronic wound.


Tender leaves are made into paste with butter milk and applied to cure fire wound. Stem bark decoction is cooled and poured on fire wound. Flowers are put into boiling water and the vapour comes from it is inhaled through mouth to cure throat wound.

7. *Cocos nucifera* L., Arecales, Thennai, Tree

Coconut oil mixed with lime powder is applied on fire wound. Coconut milk is mixed with honey and drink to treat throat wound.

8. *Croton bonplandianum* Baill., Euphorbiaceae, Vaenappoondu, Herb

Leaf paste is applied on cut.

9. *Curcuma longa* L., Zingiberaceae, Manjal, Herb

Tuber is burned and powdered. This powder is applied along with coconut oil to treat chronic wound.

10. *Euphorbia hirta* L., Euphorbiaceae, Ammaanpacharisi, Herb

Leaves are cooked with bengal gram and eaten with normal diet for ulcerated wound. Leaf powder is drink along with boiled milk for throat wound.

11. *Ficus religiosa* L., Moraceae, Arasu, Tree

Stem bark powder is mixed with coconut oil and applied on chronic wound.

12. *Lawsonia inermis* L., Lythraceae, Marudhaani, Tree

Leaves are heated in sesame oil and made into paste. This paste is applied to heal chronic wound.

13. *Milletta pinnata* (L.) Panighari, Fabaceae, Pungam, Tree

Leaf paste is applied on cut.


Leaf paste is applied in the treatment of fire wound.

15. *Musa × paradisiaca* L., Musaceae, Vaazhai, Tree

Inner stem is dried and burned. Then the gray is mixed with coconut oil and applied to treat fire wound.

16. *Phyllanthus emblica* L., Phyllanthaceae, Nelli, Tree

Fruit is dried and powdered. This powder is mixed with honey and applied for mouth wound.

17. *Piper longum* L., Piperaceae, Thippili, Climber

Fruit powder is mixed with honey and drink for the treatment of throat wound.

18. *Prosopis juliflora* (Sw.) DC., Fabaceae, Karuvaelam, Tree

Paste made from tender leaves is applied to heal wound.

19. *Panica granatum* L., Lythraceae, Maadhulai, Tree

Fruit juice is drink to cure ulcerated wound.

20. *Sesbania grandiflora* (L.) Poiret, Fabaceae, Agathi, Tree

Leaves are cooked and eaten to treat ulcerated wound. Leaves are made into decoction and cooled. Then the liquid is gargled to treat mouth wound.

21. *Solanum nigrum* L., Solanaceae, Manathakkaali, Herb

Leaves are cooked and eaten to cure ulcerated wound.

22. *Solanum torvum* Sw., Solanaceae, Sundai, Shrub

Leaf extract is poured on cut.

23. *Syzygium aromaticum* (L.) Merr. & L.M. Perry, Myrtaceae, Kirambu, Tree

Dried flower bud is burned and chewed to cure throat wound.

24. *Tamarindus indica* L., Fabaceae, Puli, Tree

Stem bark powder is mixed with coconut oil and applied on fire wound. Stem bark powder is mixed with raw cow milk and applied on chronic wound.

25. *Tribulus terrestris* L., Zygophyllaceae, Nerunj, Herb

Leaf juice is gargled for the treatment of mouth wound.

26. *Tridax procumbens* L., Asteraceae, Thaathaappoo, Herb

Leaf paste is applied to treat wound.

27. *Zingiber officinale* Roscoe, Zingiberaceae, Yinji, Herb

Dried tuber powder is mixed with pepper powder and drink along with honey to treat throat wound.

28. *Ziziphus jujuba* Mill., Rhamnaceae, Yilandhai, Tree

Leaf paste is applied on cut. Decoction made by using tender leaves is cooled and gargled with salt to heal throat wound.

6. CONCLUSION

Further studies should be carried out to evaluate the pharmacological efficacies of these plants. Conservation strategies must be carried out on these medicinally important species.

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CONFLICT OF INTEREST

The authors have declared that there is no conflict of interest.
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