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RESEARCH ARTICLE

TRADITIONAL HERBAL REMEDIES USED FOR TREATING CUTS AND WOUNDS BY LOCAL INHABITANTS OF TEHSIL RAJGARH, DISTRICT SIRMAUR, HIMACHAL PRADESH (INDIA)

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Abstract

Traditional herbal remedies form a significant part of the primary healthcare system, especially in rural and remote areas. An ethnobotanical survey was conducted in Tehsil Rajgarh of District Sirmaur. Field visits were undertaken to document indigenous knowledge regarding the utilization of plants for treating cuts and wounds. The investigation revealed the use of 42 plant species representing 21 families and 38 genera. The data was acquired through interviews and group discussions with local farmers and elderly individuals, using pre-structured questionnaires. The most frequently employed plant part were the leaves, which were followed by roots, flowers, seeds, rhizomes, and stems. Majority of the formulations used were in the form of fresh juice (15 species), paste (13 species), poultice (7 species), extract (2 species), decoction (1 species), and powder (1 species). This indigenous knowledge of plants is vanishing within communities due to the advancement of human civilizations over time. Therefore, it is essential to document this knowledge through ethnobotanical studies in order to preserve and utilize biological resources.

Introduction:-

The World Health Organization (WHO) estimates that about 80% of the world's population relies on traditional medicines, particularly plant-based remedies, for their primary health care. In India, tribal communities and folklore traditions often utilize various plant parts, extracts, decoctions or pastes to treat cuts and wounds effectively (Shashi, 1994). Since ancient times, India has possessed a rich repository of ethnomedicinal knowledge. Various uses of plants were discussed in ancient Indian Sanskrit literature, such as the Rigveda, Atharvaveda, Upanishads, Mahabharata, and Puranas. Around 70% of wound healing medications are derived from plants, with minerals accounting for 20%, and the remaining 10% are derived from animal sources (Biswas and Mukherjee, 2003). Physical injuries that cause the skin to split or open, disrupting the normal structure and function of the skin, are called wounds (Sharma *et al*., 2019). The complex process of wound healing entails the repair or regeneration of damaged tissue (Flanagan, 1996). Plant-based ethnomedicines and indigenous knowledge have gained more attention recently in both developed and developing countries. According to Pushpangadan *et al*., 2002, Indigenous Traditional Knowledge (ITK) is a community-based functional knowledge system, developed, preserved, and refined by generations of people through continuous interaction, observation and experimentation with their surrounding environment. It is a dynamic system, ever charming, adopting and adjusting to the local situations and has close links with the culture, civilization and religious practices of the communities.

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The Indian Himalayan Region is a mega hotspot of biological diversity (Myers, 2000). Situated in the Western Himalayas, the state of Himachal Pradesh is spread over an area of 55,673 km², bordered by Jammu and Kashmir in the North, Punjab in the West and South-West, Haryana in the South, Uttarakhand in the South-East and China in the East. It is situated between 30°22'40'' to 33°12'40'' North latitude and 75°45'55'' to 79°04'20'' East longitude, ranging from 350 m to 6,975 m above the mean sea level. Himachal Pradesh is blessed with a unique diversity of flora and fauna. The region is home to several ethnic populations, including the Gaddis, Gujjars, Kinnauras, Jads, Lahoulis, Spitians, Pangwals, and Swangalas, each with unique socio-economic and socio-cultural conditions. These communities play a distinctive role in protecting the region's biodiversity and environment. Many research studies have been conducted to explore the ethnomedicinal uses of plants for treating cuts and wounds in India like ethnomedicine used for treating cuts and wounds by the tribes of Attappady, Kerala by Latheef *et al*., 2014; wound healing plants of Jalgaon District of Maharashtra state, India by Chopda and Mahajan, 2019; ethnobotanical study of medicinal plants used traditionally for managing cuts and wounds by the rural people of Kailashpur, Assam, India by Gogoi and Sen, 2023; ethnomedicinal plants used for the treatment of cuts and wounds by Kuruma tribes, Wayanad district of Kerala, India by Thomas *et al*., 2014; ethnomedicine for cuts and wounds by the tribes of Visakhapatnam District, Andhra Pradesh, India by Naidu and Yadav, 2019; ethnomedicinal plants used by the tribals of Mizoram to cure cuts and Wounds by Bhardwaj and Gakhar, 2005 etc.

Study Area

The study was conducted in Tehsil Rajgarh of District Sirmaur. District Sirmaur is located in the Shivalik range of the outer Himalayas ranging from 300 m to 3000 m above sea level and is bounded by district Shimla in the North, Uttarakhand in the East, Haryana in the South, and District Solan in the North-West. It lies between 30°22'30 North latitude to 31°01'20" and 77°01'12" to 77°49'40" East longitude. There are 140 villages and 1 town in Tehsil Rajgarh. Agriculture is the primary source of income for most people in the study area. Therefore, working in the fields often leads to injuries such as cuts and wounds. As a result, people in the study area rely on natural plant resources for immediate medical assistance.

Fig. 1:- Map of India showing Himachal Pradesh.

Fig. 2:- Himachal Pradesh Districts Map.

Fig. 3:- Location map of the Study Area.

Methodology:-

Field surveys were carried out from 2016 to 2019 to document indigenous knowledge regarding the use of plants to treat cuts and wounds in Tehsil Rajgarh of District Sirmaur. Data was gathered through interviews and group discussions with local farmers and elderly individuals, using pre-structured questionnaires aiming at local names, plant part used, and modes of administration. The specimens of plants were photographed, collected, dried, and mounted on standard herbarium sheets (Jain & Rao, 1997). The voucher specimens were authenticated at Forest Research Institute, Dehradun.

Results/Discussion:-

The present investigations have shown the utilization of 42 plant species belonging to 21 families and 38 genera by the residents of Tehsil, Rajgarh (Table 1). The botanical names of the plants are listed alphabetically, followed by the family, local name, part used, and modes of administration.

Table 1:- List of medicinal plants used to treat cuts and wounds by the local inhabitants of Tehsil Rajgarh.

S.No.	Botanical Name	Family	Local Name	Part Used	Modes of Administration
1.	*Abelmoschus esculentus* (L.) Moench	Malvaceae	Bhindi	Seeds	Crushed seeds applied externally to wounds
2.	*Ageratina adenophora* (Spreng.) R.M.King & H.Rob.	Asteraceae	Galwas	Leaves	Leaf Juice applied on cuts and wounds
3.	*Ageratum conyzoides* L.	Asteraceae	Neela Phultu	Leaves	Leaf paste applied as a poultice on wounds
4.	*Ajuga parviflora* Benth.	Lamiaceae	Neelkanthi	Leaves	Leaf Juice applied on cuts.

5.	*Albizia julibrissin* Durazz.	Fabaceae	Lal Sirin	Flowers	Decoction of flowers used in wound healing
6.	*Anaphalis margaritacea* (L.) Benth. & Hook.f.	Asteraceae	Dhradi	Flowers	Crushed flowers used to heal wounds and cuts.
7.	*Artemisia indica* Willd.	Asteraceae	Chambar	Leaves	Poultice made from leaves applied on cuts and wounds to stop bleeding.
8.	*Bidens pilosa* L.	Asteraceae	Kumber	Stem	Stem juice applied to cuts and wounds.
9.	*Boehmeria virgata* var. *macrostachya* (Wight) Friis & Wilmot Dear	Urticaceae	Jagrela	Leaves	Leaf juice applied on cuts to stop bleeding.
10.	*Boenninghausenia albiflora* (Hook.) Meisn.	Rutaceae	Pissumaar	Whole Plant	Plant juice used for wound healing
11.	*Cascabela thevetia* (L.) Lippold	Apocynaceae	Kaner	Leaves	Crushed leaves are used for treating wounds in animals.
12.	*Colebrookea oppositifolia* Sm.	Lamiaceae	Binda	Leaves	Leaf juice applied on wounds
13.	*Curcuma longa* L.	Zingiberaceae	Hoig/Haldi	Rhizomes	Paste of powdered rhizomes applied on cuts and wounds to check excess bleeding.
14.	*Dodonaea viscosa* Jacq.	Sapindaceae	Mendu	Leaves	Paste of leaves applied on wounds.
15.	*Eranthemum pulchellum* Andrews	Acanthaceae	Gulsham	Leaves	Paste of leaves applied on wounds
16.	*Ficus auriculata* Lour.	Moraceae	Chimbayo	Latex	Latex applied on cuts and wounds.
17.	*Ficus religiosa* L.	Moraceae	Peepal	Leaves	Extract of leaves applied externally on wounds and cuts.
18.	*Galinsoga parviflora* Cav.	Asteraceae	Pipaltu	Whole Plant	Fresh plant juice applied on cuts effectively halts bleeding.
19.	*Galium aparine* L.	Rubiaceae	Gidbadu	Whole	Paste of plant mixed

				Plant	with water applied on cuts.
20.	*Girardinia diversifolia* (Link) Friis	Urticaceae	Lindu Bhabar	Roots	Root juice applied externally on wounds and cuts.
21.	*Heracleum candicans* Wall. ex DC.	Apiaceae	Patrala	Leaves	Leaf juice applied to wounds.
22.	*Isodon coetsa* (Buch.-Ham. ex D.Don) Kudô	Lamiaceae	Pothi	Leaves	Juice of leaves applied on cuts and wounds.
23.	*Isodon rugosus* (Wall.) Codd	Lamiaceae	Chichda	Leaves	Leaf juice applied on cuts and wounds.
24.	*Leucas lanata* Benth.	Lamiaceae	Dhurlu-ghas.	Leaves	Juice of leaves applied on wounds in animals.
25.	*Malvastrum coromandelianum* (L.) Garcke	Malvaceae	Suchi	Leaves	Leaf juice applied on cuts and wounds.
26.	*Origanum vulgare* L.	Lamiaceae	Sathra	Leaves	Leaf paste applied on cuts and internal wounds.
27.	*Osbeckia stellata* Buch.-Ham. ex D.Don	Melastomataceae	Bandar Ki Tiur.	Leaves	Leaf paste applied on cuts and wounds.
28.	*Persicaria nepalensis* (Meisn.) Miyabe	Polygonaceae	Suana	Roots	Root paste applied on wounds
29.	*Plantago lanceolata* L.	Plantaginaceae	Jangliisabgol	Leaves	Leaf paste applied as poultice on wounds.
30	*Plantago major* L.	Plantaginaceae	Baartng	Leaves	Paste of leaves applied as poultice on cuts and wounds.
31.	*Pteris cretica* L.	Pteridaceae	Barne	Leaves	Leaf paste used as poultice on wounds
32.	*Pyrus pashia* Buch.-Ham. ex D.Don	Rosaceae	Kainth	Leaves	Leaf juice applied to remove maggots from wounds in animals.
33.	*Reinwardtia indica* Dumort.	Linaceae	Basant	Leaves	Leaf paste applied on cuts.
34.	*Rumex crispus* L.	Polygonaceae	Jangli Palak	Leaves	Extract of roots applied on wounds.
35.	*Salvia cana* Wall. ex Benth.	Lamiaceae	Kuku-ro-	Leaves	Leaf paste applied to

			bhat		heal wounds and cuts.
36.	*Salvia strobilifera* (Benth.) J.G.González.	Lamiaceae	Murta	Leaves	Juice of leaves applied on cuts and wounds.
37.	*Solanum erianthum* D. Don	Solanaceae	Rada	Leaves	Poultice of leaves used to heal open wounds.
38.	*Sonchus asper* (L.) Hill	Asteraceae	Dudhi	Latex	Latex applied on cuts and wounds
39.	*Taraxacum officinale* F.H. Wigg.	Asteraceae	Kanphool	Latex	Latex applied on cuts and wounds
40.	*Thalictrum foliolosum* DC.	Ranunculaceae	Mamira	Roots	Poultice of roots applied on cuts wounds
41.	*Vallaris solanacea* Kuntze	Apocynaceae	Dudhi-ki-bel	Roots	Root paste applied on wounds.
42.	*Veronica persica* Poir.	Plantaginaceae	Raat-ki-kali.	Leaves	Leaf paste applied on cuts and wounds

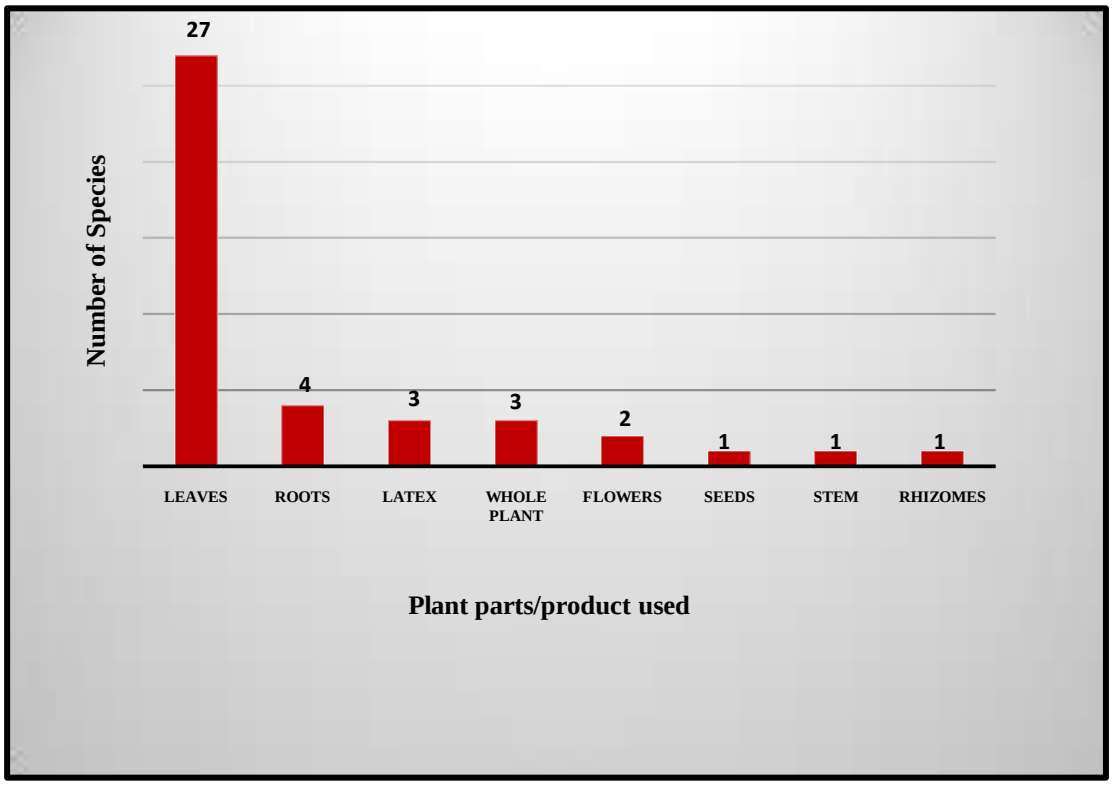

Fig. 4:- Plant parts /product used for their medicinal properties.

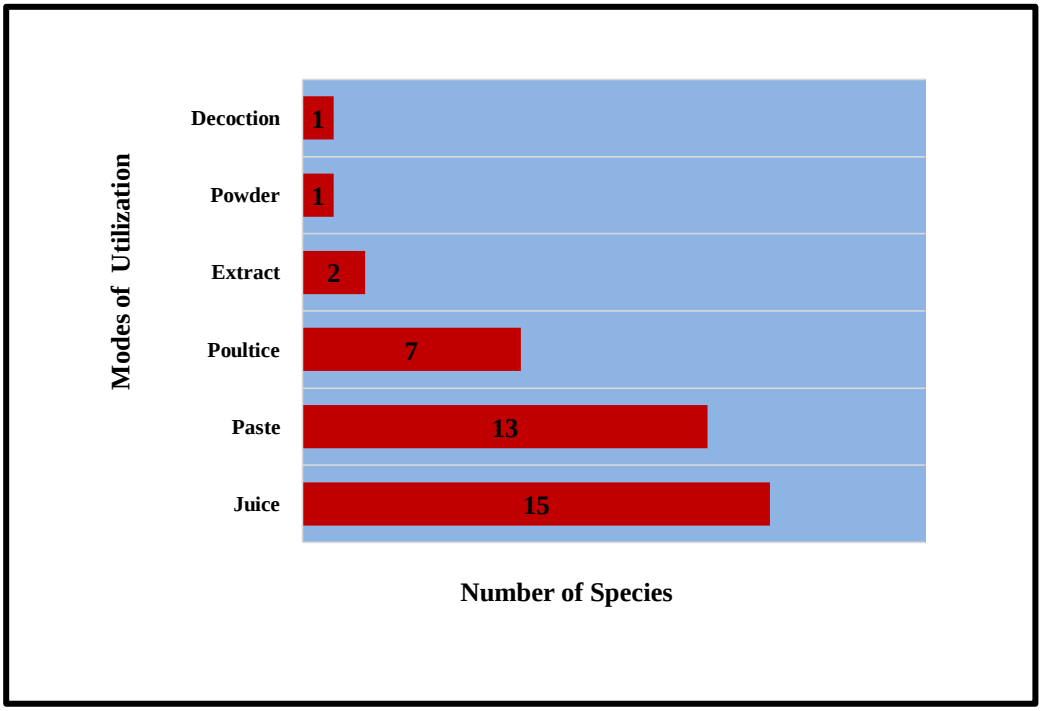

Fig. 5:- Methods of preparation used.

The most prevalent families were Asteraceae (8 species) and Lamiaceae (8 species), followed by Plantiganaceae (3 species), Apocynaceae, Malvaceae, Moraceae, Polygonaceae and Urticaceae (2 species each). The remaining families consisted of only one species each (Acanthaceae, Apiaceae, Fabaceae, Linaceae, Melastomataceae, Pteridaceae, Ranunculaceae, Rosaceae, Rubiaceae, Rutaceae, Sapindaceae, Solanaceae and Zingiberaceae). Leaves were the most commonly used plant part (27 species) followed by roots (4 species), flowers (2 species), seeds, rhizomes, and stem (1 species each) (Fig. 4). In addition to plant parts, local inhabitants of the study area also used plant products such as latex from 3 species and juice from the whole plant (3 species). The most common methods of preparation were fresh juice (15 species), paste (13 species), poultice (7 species), extract (2 species), decoction (1 species), and powder (1 species) (Fig. 5). Mostly external applications were employed for wound healing and cuts.

Conclusion:-

Cuts and wounds are common among the people of the study area. According to the current survey, 42 medicinal plants are used by the local inhabitants of Tehsil Rajgarh to treat wounds and cuts. Herbal remedies are used in the form of decoction, extract, juice, paste, powder, and poultice. Moreover, these ethnomedicinal plants do not have any side effects during the healing process. Thus, the data from this study could be useful for further investigations into the pharmacological and phytochemical characteristics of these plants.

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