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Ethnopharmacology Through Time: Tracing the Utilization of Folk Medicines in Malakand Division



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Abstract: *This study explores ethnopharmacology through time in Malakand Division by revealing the historical and contemporary use of folk medicines. Malakand region serves as a gateway to various districts and tribal areas and possesses a cultural and archaeological heritage from ancient civilizations to the present day. Employing an interdisciplinary approach involving anthropology, pharmacology, and botany, the research traces historical footprints of medicinal plant use across diverse cultures. Approximately 80% of the world's population relies on traditional medicines and is facing challenges of over-exploitation of medicinal plant resources. Pakistan's diverse climates offer a wealth of medicinal herbs. The mixed-method methodology combines qualitative and quantitative techniques, revealing the persistence of ancient medical practices. The results showcase 48 herbal remedies associated with 46 plant species, emphasizing the integral role of plant-based treatments in the local healthcare system. Specific remedies for various ailments, along with a percentage distribution of plant parts used in remedies, highlight the versatility and resilience of plant-based medicine in the region. This exploration through time uncovers the untold stories of plant-based remedies and underscores the potential of traditional knowledge in addressing contemporary healthcare challenges.*

Key Words: Folk Medicine, Malakand Division, Ethnobotany, Disease and Archaeology

Introduction

The Malakand tribal region serves as the gateway to Dir, Chitral, and Swat Districts, as well as Mohmand and Bajaur Agencies, which fall under the federally administered tribal areas (FATA) known for their tourism appeal Ali SI (2008). This region stretches from the rugged and partially glaciated mountain ranges of the Hindukush to the northern edge of the Peshawar basin. It shares borders with Dir to the north, Swat to the northeast, Buner District to the east, Mardan and

Charsadda Districts to the south, and Mohmand and Bajaur Agencies to the west (Chaghtai and Ghawas, 1976, and Figure 1). Archaeological evidence has demonstrated that ancient people consumed a varied diet and used plant-based remedies for medicine. Most of our knowledge about these diets and plant-based treatments is primarily derived from material culture such as pottery, decorative motifs, and figurines (Yacovlev and Larco Herrera, 1935, Uceda, 2004, McClelland, 2008, Burger, 2011). This study endeavours to unravel the intricate tapestry of

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medicinal plant utilization in ancient populations residing in the Swat Valley. Nestled in the mountainous region of Pakistan, the Swat Valley has been a cradle of civilization with a rich cultural heritage dating back millennia (Anwar, A. et al. (2006). However, the field of ethnopharmacology beckons us on an intriguing journey through time, weaving together the tapestry of ancient civilizations and their intricate relationship with medicinal plants. This interdisciplinary pursuit, encompassing anthropology, pharmacology, and botany, allows us to trace the historical footprints of medicinal plant use across diverse cultures and geographies, illuminating the profound connections between humanity and the flora that have played pivotal roles in its well-being (Heinrich, 2018).

Traditional healthcare systems, as well as global herbal and pharmaceutical markets, heavily rely on plant-derived medicines. Approximately 80% of the world's population depends on traditional medicines for their primary healthcare needs (Sandhya et al., 2006). In the developing world, this reliance reaches up to 90%, particularly on medicinal plants (WHO, 2002). Among the 4,22,000 reported flowering plant species worldwide, over 50,000 serve medicinal purposes

(Govaerts, 2001; Schippmann et al., 2002). The versatile use and growing demand for these plants have led to the over-exploitation and over-harvesting of medicinal plant resources. Pakistan, endowed with diverse climates, boasts a wealth of medicinal herbs spread across its vast expanse. While a total of 1572 genera and 5521 species have been identified (Ali, 2008), only 600 plant species are documented and utilized for medicinal purposes. Ethnobotany remains an unexplored field in Pakistan, with only a few published papers. Hocking (1958) stands as the pioneer in this subject area, laying the foundation for ethnobotanical research in the country. This journey aims to reveal untold stories of plant-based remedies that have withstood the test of time, standing as living testaments to the ingenuity of ancient civilizations. The intersection of ethnopharmacology and archaeobotany brings forth a deeper understanding of how plant knowledge evolved and diversified over centuries, shaped by the socio-cultural contexts of different regions (Van Andel et al., 2014). The collaborative efforts of anthropologists, archaeologists, pharmacologists, and botanists unveil not only the historical applications of medicinal plants but also their potential in addressing contemporary healthcare challenges.

Figure 1



The image displays the map of Khyber Pakhtunkhwa (KP), with the designated research area highlighted in white. (<https://www.geocities.ws/mkdfinance/pakmap.html>)

Research Argument

Folk or traditional medicine have been in use since human evaluation on earth. Archaeological, sociological and anthropological evidence evidently describes the evaluation of human culture and the use of folk medicines by people. However, a difference has been observed between folk medicines and modern medicines. For example, traditional medicines live among the people as part of their culture and the same information is culturally shared and thus preserved by people to be utilized by the next generation. However, modern medicines rely on the causes of diseases and germ theory focuses on the rationalization with the use of medicines for curing the diseases. Due to the advancement in medical science approach towards the treatment of disease, the use of traditional medicines or folk medicine is still present for treatment and diagnosis of diseases due to the traditional belief system or the non-availability of modern treatment and may further be linked to the failure of the modern medical system in some cases too. In this regard, the current study is thus an attempt to know the level of understanding of the local people about the use of folk medicine and what kind of folk medicines and diseases are treated by people using folk medicine.

Method and Procedure

This study has been conducted in the selected communities of Batkhila, Thana and Chakdara situated in the Malakand Division. The selection of the locale has been made on the basis of convenience/purpose. This study employs a mixed-method approach, integrating both qualitative and quantitative methodologies for comprehensive data collection and analysis. The qualitative component involves conducting in-depth interviews using interview guides and questionnaires, engaging with key informants, and facilitating focus group discussions (FGDs). Qualitative data is gathered from 25 respondents, including local experts in the use of folk medicines, historians, members of the elderly community, and local educators. Additionally, two FGDs were

organized, involving the elderly community associated with folk medicines in the selected locale of Malakand Division including 8-12 participants. As part of the data collection process, five in-depth interviews were conducted with elderly women aged above 75, providing an additional layer for cross-verifying information obtained from observations and interviews. The recorded information was meticulously documented in a personal diary and through the use of audio recording tools. On the quantitative side, structured questionnaires were administered to gather data. These questionnaires included carefully crafted questions related to folk medicine, knowledge and the diseases for which such medicines are utilized. The analysis of the information has been presented in the form of themes and personal statements, observations and the FGDs have also been incorporated for generating extracts.

Data Analysis, Results and Discussions:

The present investigation delves into the enduring practice of ancient medicine within the Malakand region, spanning from pre-history to the contemporary era. This study builds upon earlier research conducted by Ibrar et al. (2009), which established the persistent use of plant-based remedies among the residents. Through an extensive data collection process, a diverse array of remedies emerged, establishing themselves as pivotal medicines within the local healthcare system. This comprehensive documentation identified 48 herbal remedies, each associated with 46 distinct plant species. The role and significance of these plants in local treatments have been previously explored in studies such as the one conducted by (Zabihullah et al., 2006). The compilation includes a list of folklore medicines employed for various treatments, gathered through focused group discussions (FGDs) and guided interviews. This catalogue of traditional remedies serves as a testament to the rich heritage of medicinal practices in the Malakand region, shedding light on the continued reliance on plant-

based therapies for addressing diverse health concerns.

Use of Local Folk Medicines for Diseases

Multiple uses of folk medicines have been observed in the community during the survey. However, the most common diseases that are cured through common folk medicines are given below:

Curing Blood Pressure through Folk or Traditional Medicines

Folk medicines are commonly used by the majority of respondents in the selected locale i.e. 55% of the sampled population agreed with the use of local medicine for curing blood pressure. Out of 25 respondents, 16 respondents rely on specific remedies for the treatment of blood pressure and the use of locally available plant *Ooga* (Garlic) is very common to manage blood pressure in many cases. However, the amount of plant or part of the plant to be utilized by people has been explained by the majority of people that crushing 10 to 15 grams of *Allium Stivum* L. (garlic) and mixing it with milk is to be consumed twice daily in case of high blood pressure. Notably, respondents highlighted its efficacy for heart patients, underscoring its historical significance and cultural relevance within the community. In this regard, one of the respondents shared his experience and said that:

My father suffers from hypertension, and the elders in the family stress to utilize garlic to help manage his blood pressure. Amazingly, using the same treatment, he recovered in a while (R-20)

Another respondent said that:

I am personally using garlic as a remedy for hypertension as well as lowering the cholesterol level in my body. To me, it is the best remedy with no effects, however, it shall be used with caution (R-13).

The use of garlic in traditional medicine for cardiovascular health is well-documented across various cultures, reflecting its perceived therapeutic properties. The information has also

been confirmed by the local experts, data from FGDs and interviews with the respondents. In the local context, the preparation of the "*Ooga*" remedy is often passed down through generations, with families adhering to traditional practices that emphasize precise measurements and preparation techniques.

Bleeding gums and dental problems

The analysis of the field data shows that some folk medicines are utilized by the community for the treatment of gum bleeding and other dental pain or problems. Among the total 25 respondents, 14 (56%) reported utilizing "*Gandaray*" (*Nerium oleander* Linn) as a remedy for bleeding gums and dental problems. About the use of the given folk medicine, the process involves using fresh leaves of *Nerium oleander* Linn which are washed, crushed, and then boiled in three cups of water. The resulting filtrate is administered to patients suffering from dental pain or bleeding gums. The use of *Nerium oleander* in traditional medicine for oral health issues is noteworthy, reflecting the community's reliance on natural remedies for managing dental ailments and reported by 68% of the respondents. This remedy's preparation method, involving boiling and filtration, suggests a systematic approach to extracting beneficial properties from the plant material as explained by a respondent:

Mostly, in our house, the elders suggest treatment of dental pain and bleeding through the use of fresh leaves (5 or 6 in number) and the same is boiled for some time and then the water is put in the mouth for treatment. This results in removing pain within no time (R-21).

Similarly, one of the respondents presented his views as:

For gum bleeding and dental, sometimes the use of salt is also beneficial with the plant juice, and this is a common practice in my house (R-16).

Furthermore, it has been extracted from the field data that the widespread adoption of the "*Gandaray*" remedy among respondents underscores its perceived efficacy and cultural

significance within the community which is reported by more than 70% of the sampled population while the same has been verified through focus group discussion. Similarly, keeping in view the medicinal properties of the plant, the remedy serves as a tangible link to local traditions and ancestral wisdom, reinforcing the community's resilience in addressing health challenges through time-honoured practices. The statement has been supported by most of the field respondents and key participants.

Diarrhea and the Use of Folk Medicine

Diarrhea is a common health disorder caused among different age groups and is mostly found in children in the locality. The field information and the statistics suggest that 85% of respondents were aware of the disease and reported that diarrhoea is a common disease among the local people affecting their health and nutrition. Similarly, due to the commonality of the disease, the local folk treatment has been performed in the majority of the cases with the use of a common tea prepared with "*Angor, Anar, and Chai*" (a tea prepared from grapes, pomegranate, and tea) reported by the participants. This remedy involves the preparation of a therapeutic tea by combining 10 grams of dried ground leaves of *Vitis vinifera* L. (common grape vine), 10 grams of rind from *Punica granatum* L. (pomegranate), and *Camellia sinensis*(L) Kuntze (tea plant). The prepared tea is then administered to the patient three times a day. In this context, one of the respondents shared one of their interesting life experiences:

One of our memorable family experiences was during a trip to a destination with no medical facilities available. My son developed severe diarrhoea, but we managed to alleviate his symptoms by giving him boiled water infused with pomegranate (Angor), pomegranate juice (Anar), and chai. Remarkably, he showed significant improvement within just one hour (R-17).

In a similar context, a respondent reported that:

For the last 20 years in our family, the important remedy is the use of tea prepared from

anar, etc., however in severe cases, nowadays the things are referred to local dispensers or doctors (R-06)

The inclusion of ingredients such as grapevine leaves, pomegranate rind, and tea plants in this remedy reflects a holistic approach to managing diarrhoea, drawing upon the purported medicinal properties of these botanical components. The inclusion in such a manner was also supported by the field observation, FGDs and discussion with the key informants. In this context, each ingredient may contribute unique bioactive compounds believed to alleviate symptoms associated with gastrointestinal distress, thus helping to cure the disease in the cultural and local context.

Fever and the Use of Folk Medicines

Another very common disease which is reported from the field data and other sources is fever which is a severe health disorder faced by almost every individual due to different health problems. The analysis of the field data through the questionnaire reported that almost all of the respondents have enough knowledge regarding fever while the majority 60% of respondents rely on a specific remedy for fever, known locally as "*Marhaghonay*" (leaves and fruits). The use of the leaves and fruits of this specific plant is considered to be a remedy that involves a straightforward yet effective method of boiling the leaves and fruits, filtering the resulting water, and administering it orally twice a day for three consecutive days. About the use of the plant, a respondent explained that:

The plant is easily available, and the utility of the plant is dramatic due to its effect in curing fever. However, due to the modern approaches to health care, people are now reluctant about its use in maximum cases (R-09).

The preparation is very simple as reported by the majority of the respondents and the method suggests a pragmatic approach to managing fever within the community. By utilizing readily available plant materials and employing a familiar technique of boiling and filtration, individuals can easily prepare and administer the remedy at home.

Furthermore, the use of leaves and fruits in the preparation of the "Marhaghonay" remedy may offer a rich source of bioactive compounds believed to possess antipyretic properties. The act of boiling these plant parts likely facilitates the extraction of beneficial compounds, which are then consumed orally to alleviate fever symptoms. The same treatment and effects are reported by participants in the FGDs and further by the key informants.

Use of folk medicine and Urinary Infection

Urinary infection is common among the sample population as well as in the general community. The information obtained from the research participants augment that the majority of respondents i.e. 95% reported this disease as common among their families. Similarly, the majority of respondents employ a remedy for urinary infection, referred to locally as "Nazar Panrha" (L. Berries) which involves the use of berries from the *Juniperus communis* L. plant for preparation of the medicine. While reporting the preparation techniques, most of the respondents were of the opinion that 01 teaspoons of the leaves of berries are taken and the same is boiled in 5 cups of water for preparation of tea. The recommended dosage is to consume half or 1 cup of this tea three times daily.

In this regard, a respondent reported that:

We have good experience in treating urinary infections of the family members with this medicine and the results are enormous. In addition to medical intervention, we also utilized the traditional remedy of Nazar panhara, which yielded positive results.

The utilization of *Juniperus communis* L. berries for the treatment of urinary infection has also been supported by the information obtained from FGDs and personal interviews with the elders. The remedy has been reported to align with traditional medicinal practices, as these berries are believed to possess antimicrobial properties that may help combat urinary tract infections. Boiling the berries in water facilitates the extraction of

bioactive compounds, which are then consumed in the form of tea to target the infection.

Using folk Medicines for scorpion Bites

Scorpions' bites are very common in research localities due to the availability of the various species of scorpions. However, scorpions are found in the region in the summer season and thus the majority of the bites have been reported by the respondents in the hot summer seasons, particularly during the nighttime. Most of the respondents, i.e. 58% indicated the use of a remedy for treating scorpion bites, known locally as *Piaz* (onion). This remedy involves utilizing some parts of *Allium cepa* L. (common onion) to be placed on the wound. To prepare the remedy, individuals heat these onion parts and apply them directly to the bitten area twice a day for a duration of 3 days. One of the respondents reported that:

Last summer, my kid was bitten by a scorpion during the nighttime, and it was difficult to reach the hospital. The onion remedy was prepared urgently and after placing the same on the wound, the child got a sigh of relief after a few minutes (R-3).

The folk medicine as reported by the respondents has also been supported by key respondents and the information obtained from FGDs. However, it was added that the same treatment is also extended to other poisoning insects bites and even snakes.

Conclusion

In conclusion, the research conducted on ethnopharmacology in the Malakand Division illuminates the enduring utilization of folk medicine in the region, offering valuable insights into both historical and contemporary practices of plant-based remedies among local communities. This study, which embraces an interdisciplinary approach involving anthropology, pharmacology, and botany, aims to trace the historical footprints of medicinal plant usage for treating diseases within the region. The findings reveal that local inhabitants heavily rely on traditional medicine,

particularly plant-derived remedies, to address various health concerns. Diseases such as diarrhoea, fever, high blood pressure, urinary infections, bleeding gums, dental pain, and scorpion bites are commonly treated using locally derived recipes from folk or traditional medicinal plants. The study underscores the cultural significance and effectiveness of these remedies, which have been passed down through generations and continue to be cherished within the community.

Moreover, the research highlights the potential of collaborative efforts among different fields of study, including anthropology, archaeology, pharmacology, and botany, in uncovering the historical applications of medicinal plants and their relevance in addressing contemporary healthcare challenges. By exploring the intricate tapestry of ancient civilizations, this study deepens our understanding of the profound connections between humanity and the plant kingdom, emphasizing the pivotal role of plants in promoting well-being across time and cultures.

Recommendations

Based on the findings of the research, several recommendations can be made to further enhance the understanding, preservation, and utilization of traditional medicinal knowledge:

Documentation and Preservation: There is a need for comprehensive documentation of traditional medicinal practices, including the identification of medicinal plants, preparation methods, and efficacy. This documentation should be carried out in collaboration with local communities, ensuring the preservation of indigenous knowledge for future generations.

Education and Awareness: Efforts should be made to raise awareness among both local

communities and healthcare professionals about the value and efficacy of traditional medicine. This can include educational campaigns, workshops, and seminars highlighting the importance of traditional remedies in complementing modern healthcare practices.

Integration into Healthcare Systems: Traditional medicine should be integrated into formal healthcare systems, with recognition and support from government agencies and healthcare institutions. This can involve training traditional healers, incorporating traditional remedies into primary healthcare services, and establishing protocols for collaboration between traditional healers and modern healthcare providers.

Research and Innovation: Continued research is needed to explore the scientific basis of traditional medicinal practices, including the identification of active compounds in medicinal plants and their mechanisms of action. This research can lead to the development of new treatments and therapies based on traditional knowledge, contributing to both traditional and modern healthcare systems.

Cultural Preservation: Traditional medicinal practices are often deeply rooted in cultural beliefs and practices. It is important to recognize and respect the cultural significance of traditional medicine, while also promoting cultural diversity and heritage preservation.

Collaborative Research and Partnerships: Collaboration between researchers, government agencies, NGOs, and local communities is essential for the success of initiatives aimed at preserving and promoting traditional medicine. By fostering partnerships and sharing knowledge, stakeholders can work together to address healthcare challenges and promote holistic approaches to health and wellness.

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