Journal of Ethnopharmacology 188 (2016) 57–69

Contents lists available at ScienceDirect

Journal of Ethnopharmacology

journal homepage: www.elsevier.com/locate/jep

Traditional use of medicinal plants among Kalasha, Ismaeli and Sunni groups in Chitral District, Khyber Pakhtunkhwa province, Pakistan

Hassan Sher [a], Rainer W. Bussmann [b], Robbie Hart [b], Hugo J. de Boer [c,d,*]

[a] Center for Plant Sciences and Biodiversity, University of Swat, Khyber Pakhtunkhwa, Pakistan
[b] William L. Brown Center, Missouri Botanical Garden, St. Louis, USA
[c] Department of Organismal Biology, Uppsala University, Sweden
[d] Natural History Museum, University of Oslo, Norway

ARTICLE INFO

Article history:
Received 19 March 2016
Received in revised form
28 April 2016
Accepted 30 April 2016
Available online 3 May 2016

Keywords:
Ethnic groups
Indigenous knowledge
Ismaeli
Kalasha
Medicinal plants
Sunni
Traditional herbal practitioners

ABSTRACT

Ethnopharmacological relevance: The traditional use of medicinal plants for the treatment of human and livestock ailments is important to indigenous communities in the northern parts of Pakistan, and considered to be a valuable local biological and sociocultural heritage. The aim of this study was to obtain a detailed inventory of medicinal plant use and preparation among Kalasha, Ismaeli and Sunni groups.
Materials and methods: Semi-structured group and individual interviews were carried out with men and women of different age groups that identified themselves as being Kalasha, Ismaeli or Sunni. Interviews were followed up by field visits to collect herbarium vouchers and record in greater detail the exact methods of harvesting, preparation and use on medicinal plants.
Results: A total of 76 species were recorded for treatment of various diseases. The Kalasha, Ismaili and Sunni ethnic groups have similar medicinal floras, but show striking differences in plant use. Our comparative survey shows that out of all species reported in this study, only 13 species have been reported previously from Chitral District.
Conclusions: Indigenous knowledge of folk medicine is intricately linked to local culture, religion and history. Any short study can only scratch the surface of this intricate system, but provide an insight into the critical importance of medicinal plants for local livelihoods and the important role these play in health care systems. There is a great need to assess and properly manage the production potential of medicinal plants to ensure sustainable supply of these species for local use and subsistence trade.

1. Introduction

There are an estimated 350,000–400,000 species of plants (Joppa et al., 2010; Paton et al., 2008), and many of these are used in the treatment of health disorders (Abbasi et al., 2010; Bussmann et al., 2008, 2007). According to the WHO, around 80% of the world's population in the developing world relies on herbal remedies for their primary healthcare needs (World Health Organization, 2003). A large proportion of modern pharmaceuticals are derived from plants, and more often than not inspired by traditional use (Farnsworth and Soejarto, 1991; Newman and Cragg, 2012).

In 2006, the medicinal and aromatic plants (MAPs) trade as a commodity had a value of 60 billion US$ (Hamilton, 2006). Such trade is expected to expand substantially by the year 2050 (Lange, 1997), because of the increasing popularity of herbal medicines (Al-Quran, 2008; B. Khan et al., 2011). MAP harvesting, cultivation and trade provide crucial livelihood options for millions of rural people in South Asia, particularly women and low income groups (de Boer et al., 2012; Larsen and Olsen, 2007). Over the last decades, there has been a growing scientific and commercial interest in Pakistan in medicinal plants, mainly due to their economic potential and the widespread cultural acceptability of plant based products (Sher et al., 2015a, 2014). In Pakistan, similarly to other developing countries, an estimated 80% of the rural population depends on traditional medicine, especially medicinal plants, for their primary healthcare needs (Khan, 2012).

Chitral District in northern Pakistan is rich in cultural, geophysical and biological diversity (Khan, 2005; Nüsser and Dickoré, 2002; Sher, 2002). Local wild plant resources provide a variety of basic needs such as building materials, food, and medicines for communities. The depletion of favored plants, especially medicinal plant resources, results in the loss of self- sufficiency and economic opportunities for the inhabitants of the area (Khan, 2005). This can also lead to resource management problems in

* Corresponding author at: Department of Organismal Biology, Uppsala University, Sweden.
E-mail addresses: hassan.botany@gmail.com (H. Sher), rainer.bussmann@mobot.org (R.W. Bussmann), robbie.hart@mobot.org (R. Hart), hugo.deboer@nhm.uio.no (H.J. de Boer).

http://dx.doi.org/10.1016/j.jep.2016.04.059
0378-8741/

conservation areas as they become focal points for harvesting selected species, resulting in the loss of diversity and growing conflicts between resource users and managers. Natural resource management systems are localized systems forming the basis for decision making among rural people. Because the majority of land based production systems in Chitral District operate under indigenous knowledge systems, they are not only of value to cultures from which they have evolved, but also to scientists and planners striving to improve livelihoods in rural societies. However, there is tremendous pressure of socio-economic change and with this the indigenous knowledge of folk medicine and its cultural traditions are eroding (Sher et al., 2015a, 2014).

Realizing the importance of medicinal plants, both as a potential economic activity for rural populations and as a vehicle to promote conservation and better management of natural resources, the present study was conducted with the aim to document the traditional uses of medicinal plants for the healthcare of people and livestock of indigenous communities. The study has a comparative focus studying similarities and difference in species and uses among three ethno-religious groups living in Chitral District, the Kalasha, Ismaeli and Sunni. It tests the hypothesis that species use among different people living in the same area converges on the same species. The following research questions are addressed: (1) Which species are used by the three groups? (2) How are the species used and for the treatment of what diseases? (3) How does plant use differ between the three groups, and how does this compare with previous studies?

2. Materials and methods

2.1. Study area and people

Chitral District lies in northwestern Pakistan, and south of the Afghan Wakhan Corridor (Fig. 1). This remote area of Pakistan is bordered by the Hindu Raj mountain ranges in the South, the Hindu Kush in the West and North, the Mashambur in the East and Western extremity, and the Karakoram in the Northeast (Shaw and Shaw, 1993). Chitral can only be reached by air or by crossing the 3118 m Lowarie Pass by jeep from Swat District. This pass is blocked by snow during the colder months of the year (December–April) (Sher et al., 2015a). The Chitral valley is a contrast of snow-capped peaks, barren land, cultivated areas, and the brown waters of the Chitral River.

Chitral is an area of great linguistic diversity, and although the predominant language is Khowar, many more languages are spoken here, including Kalasha-mun, Palula, Dameli, Gawar-Bati, Nuristani, Yidgha, Burushaski, Gujar, Wakhi, Uzbeki, Kyrgyz, Dari and Pashto (Morgenstierne, 1926). The main ethnic group are Khowaris, and minority groups include the Kalasha. The Khowaris largely occupy the more northern areas of the District, and are Ismailis, i.e. followers of the Aga Khan. The south of Chitral is inhabited by Pashtun-speaking Sunni Muslims. The most well-known ethnic minority is the Kalash, a Dardic indigenous people speaking a Dardic Indo-Iranian language, Kalasha-mun. The Kalasha live in the Rumbur, Bumberet and Birir Valleys south-west of Chitral town.

2.2. Field survey methods

Surveys were conducted during the summer of 2014 over a six week period by a male multidisciplinary team comprising an ethnobotanist, a sociologist and a pharmacist from the University of Swat, as well as staff from collaborating agencies including the Agha Khan Rural Support Program (AKRSP) and the Pakistan Forest Department. A questionnaire was devised to identify the knowledge of rural participants and their immediate family about the collection of medicinal plants and their use within the community. Information from the three different ethno-religious groups, Kalasha, Ismaili and Sunni, living in district Chitral was included in the survey. A medicinal herbal data sheet was incorporated into the survey as a means of obtaining detailed specific information on all species mentioned by local people as being commonly used by themselves and the community. Interviews began with a brief introduction of the team and the purpose for the study to gain the trust and consent of the participants, which allowed them to talk more freely and openly.

Participatory Rural Appraisal (PRA) techniques, including group discussions, transect walks, and sample survey techniques were used for gathering field data (Chambers, 1994a, 1994a, 1994b). The survey was divided into three categories: general group discussions, team interviews, and transect walks. The general meetings were held in the local Hujra, the male meeting place, and a focal point for official communication in the community. These meetings were attended by all members of the survey team, the male village elders, male medicinal plant collectors and sellers, male local hakims, and male religious leaders of the ethnic groups. This meeting was a very important aspect of the survey as it helped the men of the

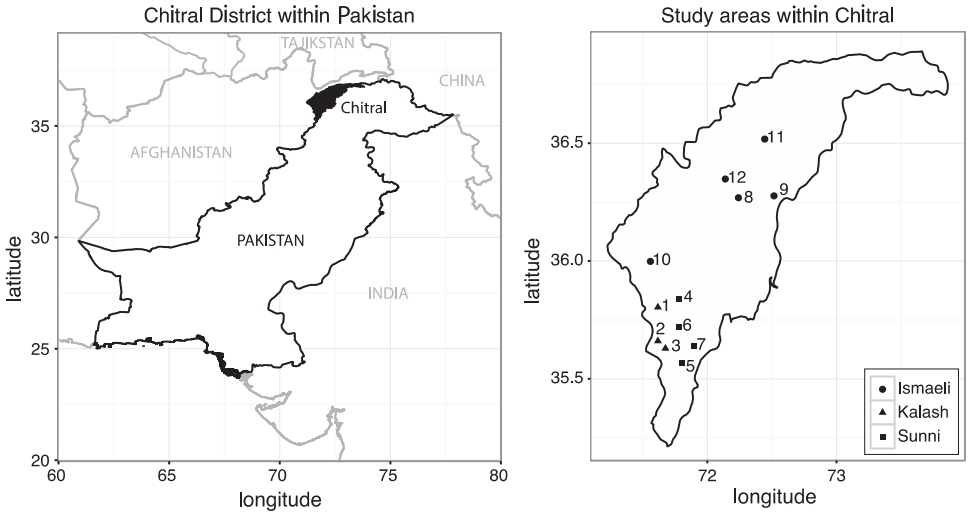

Fig. 1. **a**. Chitral District, Khyber-Pakhtunkhwa province, Pakistan. **b.** Areas included in the study: 1. Rumbur; 2. Bumbert; 3. Birir; 4. Chitral Town; 5. Drosh; 6. Ayun; 7. Shishi; 8. Buni; 9. Matsuj; 10. Garam Chasma; 11. Turkho; 12. Tirich Mir.