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## Indigenous knowledge of medicinal plants from Gujranwala district, Pakistan

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## ABSTRACT

**Aim of study:** This study was focused with the aim to investigate and document the indigenous medicinal knowledge and commonly used medicinal plants from Gujranwala district, Pakistan and to establish a baseline data in continuing studies aimed at more comprehensive investigations on bio-active compounds of indigenous medicinal plants.

**Material and methods:** Rapid appraisal approach (RAA) was used along with the interviews, group meetings with people having knowledge about indigenous uses of medicinal plants and individual meetings with herbalists were conducted, to collect the ethnomedicinal data.

**Results and discussions:** About 71 species of medicinal plants belonging to 38 families have been documented through 203 informants. Most favored plant part used for indigenous medicine was leaves (38%) followed by the seed (13%), whole plant (11%), flower (9%), fruit (8%), root and bark (6%) and the main source of these medicines was wild herbs (54%) followed by the wild shrubs, wild trees (13%), cultivated herbs (10%), cultivated trees (5%), cultivated shrubs (3%) and wild grasses (2%). The herbal preparations were mainly administered orally and topically.

**Conclusion:** Gujranwala district has great diversity of medicinal plants and people are aware about their medicinal values. Few plants are playing vital role in the basic health care needs of study areas; such plants should be screened for detailed pharmacological studies to explore new biological compounds.

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## 1. Introduction

Ethnomedicinal studies are substantial in illuminating significant indigenous plant species particularly for the discovery of new crude drugs. Documentation of indigenous medicinal knowledge of traditional plant species has contributed a number of vital modern drugs (Cox, 2000; Flaster, 1996). About 25% of the modern drugs are plants originated and numerous synthetic drugs that are built on prototype substances derived from plants are listed in modern pharmacopeia. Majority of the population (80%) of developing countries is still reliant on traditional medicinal remedies for their basic health care needs (Danø and Bøgh, 1999; Calixto, 2005; World Health Organization (WHO), 2002) and most of the traditional therapies comprise the medicinal plants extract or their active ingredients (WHO, 1993). Thousands of medicinal plant species have been used for the herbal preparations, with potent

and effective drugs, tested from centuries and could not be interchanged with the modern allopathic preparations (Ahmad, 1998).

However, the field pharmacology, for the discovery of new drugs from medicinal plants is yet poorly explored. Out of 265,000 reported flowering plant species (Stevens, 2001), just a fraction has been screened phytochemically and merely a subsample of this has been investigated properly, in respect of their pharmacological properties. In majority of cases, preliminary pharmacological investigations have been conducted. About 5000 medicinal plants species have been screened to explore their active constituents (Payne et al., 1991). Several kinds of reasonable and operational survey approaches are needed to protect the pharmaceutical and medicinal knowledge of plants from loss. The approach of ethnomedicinal survey is a suitable technique that can be used to choose plants for detailed pharmacological screenings (Redzić, 2007; Sarić-Kundalić et al., 2010).

In Pakistan little attention has been paid to the ethnomedicinal values of medicinal plants (Mahmood et al., 2011c; Mahmood et al., 2011d). The field of ethnomedicines in Pakistan can be said to be

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virgin (Mahmood et al., 2011a) although, few efforts have been made to investigate the medicinal properties of indigenous medicinal plants species (Qureshi et al., 2006; Ahmad and Husain, 2008; Husain et al., 2008; Qureshi et al., 2009; Mahmood et al., 2012). Due to economic curbs, rapid population growth, limited health care facilities and unaffordable costs of allopathic medicines local people still prefer these indigenous medicines (Mahmood et al., 2011b). Indigenous medicines have been practiced at the large scale of the country but, unfortunately, this knowledge is not being properly documented from the most important areas of Pakistan. There exists no detailed report on the ethnomedicinal knowledge of plants from Gujranwala district, Pakistan. The present study was focused with the aim to investigate and document the indigenous medicinal knowledge and commonly used medicinal plants from Gujranwala district, Pakistan and to establish a baseline data in continuing studies aimed at more comprehensive investigations on bio-active compounds of indigenous medicinal plants.

## 2. Materials and methods

### 2.1. Choice of study area and key informants

Ethnomedicinal survey was conducted in Gujranwala district, Pakistan from April 2012 to June 2012 to document the indigenous medicinal knowledge. During the survey district administration that is authorized to register the herbalists to practice local herbal remedies, was selected as key informant about herbal practitioners. The whole district, especially Gujranwala city, and its adjoining rural areas were selected after detailed discussion with some herbalists and key informants as, a number of herbalists are practicing in metropolitan areas of city and the rural communities widely depend upon traditional medicinal plants against a number of ailments.

### 2.2. Description of study area

Gujranwala lies between 32.16°N, 74.18°E which is surrounded by Sheikhpura on the west south, Gujrat on the north-west and

Lahore on south. Elevation of Gujranwala is 226 m above the sea level, spreading over an area of 3198 km<sup>2</sup> with population 1,961,360. May, June and July are the hottest months while in winter the temperature may drop below zero. The soil is fertile and rich in the medicinal plants diversity due to plain topography. Vegetation of the district is ruled by grass lands and bush land. Vegetation pattern has altered meaningfully over by last few decades. Crop farming areas have replaced the woodlands; grass lands have been transformed to the bush lands; overstocking and overgrazing are the main reasons of this transformation. However, a diversity of herbs and shrubs exist that is playing a vital role in indigenous healthcare system. Fig. 1 shows the Gujranwala district in relation to the map of Pakistan.

### 2.3. Data collection

Data on traditional medicinal uses to treat various diseases was collected through rapid appraisal approach (RAA) that was based on direct interaction with indigenous communities and observation during the field visits (Martin, 1995). Interviews, group meetings with people having knowledge about indigenous uses of medicinal plants and individual meetings with herbalists were also done to collect more precise data on indigenous medicinal knowledge. Mr. Adeel Mahmood was aware with the local language (Punjabi), which permitted the accurate recording of information. During the course of study 59 (Age 37–55), 75 (Age ≥56) male; 19 (Age 37–55 and married), 50 (Age ≥56) female and 43 traditional healers (herbal specialist) were interviewed (Table 2). Information regarding the disease treated by medicinal plant or herbal remedy, part(s) used as drug, mode of preparation, route of administration and dosage, vernacular name of plant(s) and status of plant species were recorded.

### 2.4. Collection and identification of plant species

Medicinal plants reported by indigenous people and herbalists, used in local healthcare system were collected from the study area with the help of a botanist and herbalists; carried to the Herbarium

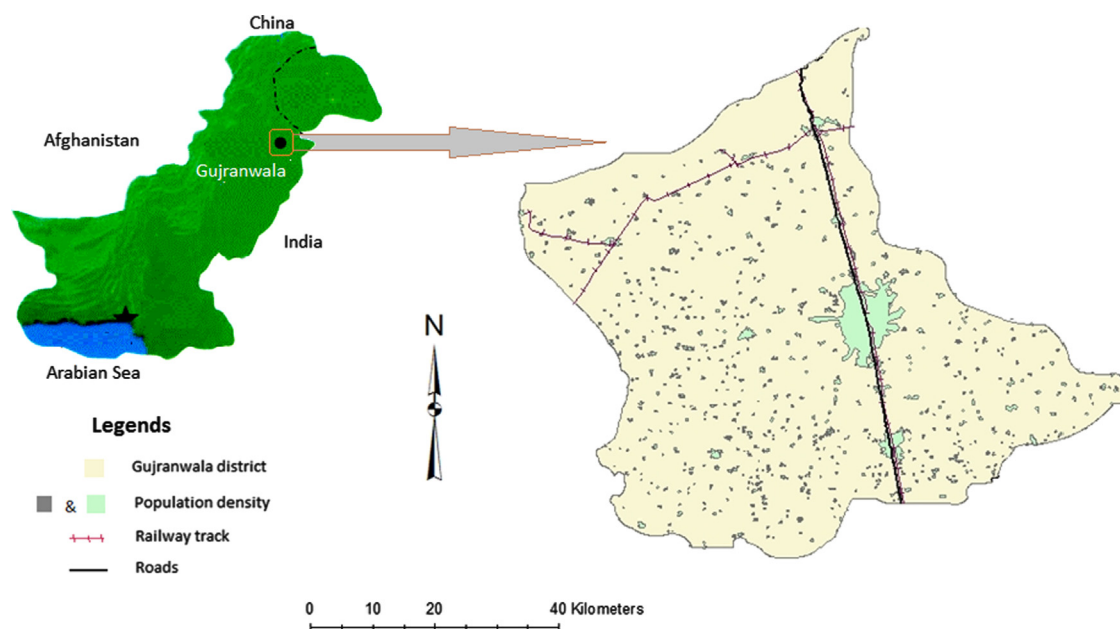


Fig. 1. Map of Pakistan showing the study area.

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