

ETHNOMEDICINAL PLANTS USED BY LOCAL INHABITANTS IN THE PREVENTION OF GASTROINTESTINAL PROBLEMS IN LOW HILLY AREAS OF F.R. BANNU, PAKISTAN

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ABSTRACT

The study was conducted to highlight those information regarding medicinal plants used to treat gastro intestinal troubles in certain areas of FR Bannu, Pakistan during 2015. A total of 29 plants belonging to 25 different families were collected that were used to treat gastro intestinal disorders by the local farming community. Among them, the Poaceae, Lamiaceae, Zingiberaceae and Amaranthaceae were the leading families having two species each while Brassicaceae, Moraceae, Malvaceae, Alliaceae, Asclepidiaceae, Solanaceae, Apiaceae, Meliaceae, Liliaceae, Caesalpiniaceae, Fumiraceae, Oxalidaceae, Chenopodiaceae, Papevaraceae, Plantaginaceae, Portulacaceae, Punicaceae, Polygonaceae, Adiantaceae, Thymeleaceae and Scrophulariaceae having only one species. Most of the plants were used for stomach problems (93.75%), abdominal pain (81.25%), body cooling (18.75%), gas problems (18.75%) and dysentery (18.75%). The plant species collected were widely used in the region region to cure abdominal pain, diarrhea, dysentery, stomach problems and gas troubles. The documentation of these plants comprises of botanical names, family names, local names, parts used and mode of administration.

Key words: Bannu, ethnomedicinal plants, gastrointestinal disorders, medicinal plants.

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INTRODUCTION

The usage of ethnomedicinal drugs remains prevalent in developing countries and the use of complementary alternative medicine (CAM) is also greater than ever. Medicinal plants are widely used to cure various diseases and regarded invaluable resources from ancient time to the present. Due to easy availability and adulteration nobody is interested in the conservation of plants (Samin *et al.*, 2008). Ethno-medicinal plants are easily used medications and a specific group of plant categories are used for various ailments (Hamilton, 2004). Amongst various ailments reported by limited people of FR Bannu, the gastrointestinal ailments were more common. Most of the indigenous people rely on herbal medications to cure gastrointestinal disorders. The gastro problems reported were stomach problems, abdominal pain, diarrhea, dysentery, dyspepsia, nausea, and abdominal worms. Interviews were carried out in the tribal territory FR, Bannu which shows that locals frequently used indigenous medicinal plants in the treatment and prevention of a wide range of gastrointestinal ailments (Mohammed *et al.*, 2010; Olajuyigbe and Afolayan, 2012). For meeting the upcoming requirements, promotion of medicinal plants has to be encouraged. The current study was conducted to make awareness in the local communities and to highlight the importance of these plants used to treat gastrointestinal disorders. This type of ethnobotanical research also needs a multidisciplinary approach and this includes skills in the fields of pharmacology and phytochemistry. The purpose of the current study was to get information on the uses of local plants in the control of gastrointestinal disorders, the plants usage, the method of preparing herbal gastrointestinal remedies, and how these are used in some localities of FR Bannu, Pakistan.

MATERIALS AND METHODS

Data were collected by field excursion to all villages in the FR Bannu, Khyber Pakhtunkhwa like Zarwum, Chappari, Gangiikhel, Saardi Khel, Peng, Saararoga, Lakanai, Dragaii, Ali khal, Srabi, Narmekhel, Hind khel and Wolay, etc. during the year 2015 in order to classify those plant species used for gastrointestinal disorders. The information was collected from indigenous people through interview, questionnaire and discussion. About 61 skilled locals, 21 traditional plants dealers and 11 local health healers were interviewed. The plant samples were identified by comparing with Flora of Pakistan (Nasir and Ali, 2005; Qaisar *et al.*, 2013; Amina *et al.*, 2015; Khan *et al.*, 2015).

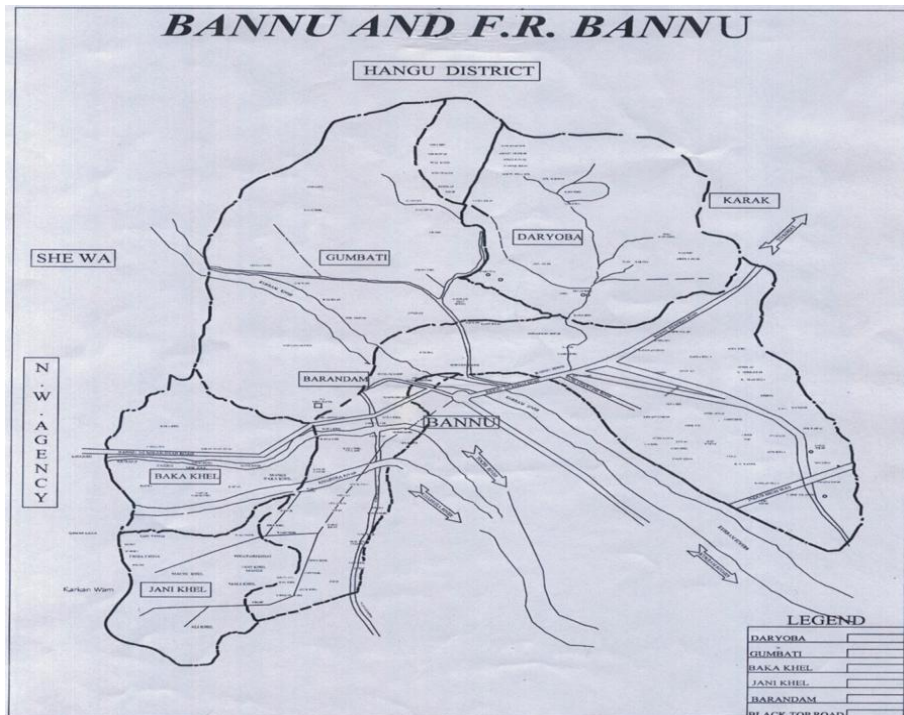


Figure 1. Map of the area

RESULTS AND DISCUSSION

During the study, about 29 ethnomedicinal plants, used for gastro intestinal disorders, were documented that were distributed in 25 different families. Out of these 29, the Poaceae, Lamiaceae, Zingiberaceae and Amaranthaceae were the leading families with two species each, followed by the families of Alliaceae, Malvaceae, Punicaceae, Asclepiadiaceae, Brassicaceae, Solonaceae, Apiaceae, Fumiraceae, Meliaceae, Moraceae, Liliaceae, Caesalpiniaceae, Oxalidaceae, Chenopodiaceae, Papaveraceae, Plantaginaceae, Portulacaceae, Polygonaceae, Thymeleaceae, Adiantaceae and scrophulariaceae having only one species each (Table-1). In relation to vegetation, Pakistan's biological diversity offers a vast resource for herbal remedies. Therefore, an ethnomedicinal investigation was conceded out to choose these plants used as traditional drugs in FR Bannu, Pakistan. The study was carried out by means of 93 discussions with therapeutic plant employers and extractors. Khan and Khatoon (2007) were of the view that owing to the passing away of older people the homegrown information related to therapeutic floras exercise is under high threat of elimination from the native community. The stem of *Adiantum capillusveneris* is grinded and

mixed with milk and plantago seeds which stop inflammation of stomach. *Abutilon indicum* leaves infusion is used 4 to 5 times a day to antidote severe pains of stomach. *Achyranthes aspera* leaves extract is mixed and sugar to remove stomach problems and severe abdominal pains. Leaves of *Ajuga bracteosa* are mixed with sugar for treatment of abdominal pain and blood purifier. A recipe from root powder of *Solanum surretense* and sugaris used to relieve stomach inflammation. Decoction of *Zingiber officinale* rhizome is used for stomach troubles. The proportion of remedial plants is so far is well-known among the ladies and old people; therefore, it is important to promote awareness of curative plants among the new generation. Related exploration has been shown by (Shinwari et al., 2011). The plants are rather useful for healthcare and cleanliness of local people (Aumeeruddy, 1994). It was observed that the persons living in town areas have almost no information about ethnomedicinal uses of plants (Alcorn, 1984; Altieri et al., 1987). The important issue to use plants as ailments is the greater charges of allopathic drugs and inaccessibility of improved health services (Qureshi et al., 2006). The data of current results regarding stomach problems (93.75%), abdominal pain (81.25%), body cooling (18.75%), gas problems (18.75%), dysentery (18.75%), fever (12.5%), blood purification (6.25%), tonic (6.25%), liver pain (6.25%), worm expulsion (6.25%), indigestion (6.25%), vomiting (6.25%), diarrhea (6.25%), urinary problems (6.25%), headache (6.25%), wound healing (6.25%) and constipation (6.25%) as mentioned in Table-2 and Fig. 3 agree with the report of Cornara et al. (2009).

Table-1. Gastrointestinal problems and indigenous plants

| Family | Species number | Family | Species number | Family | Species number |
|----------------|----------------|-----------------|----------------|------------------|----------------|
| Poaceae | 02 | Solonaceae | 01 | Plantaginaceae | 01 |
| Lamiaceae | 02 | Apiaceae | 01 | Portulacaceae | 01 |
| Zingiberaceae | 02 | Meliaceae | 01 | Punicaceae | 01 |
| Amaranthaceae | 02 | Liliaceae | 01 | Polygonaceae | 01 |
| Brassicaceae | 01 | Caesalpiniaceae | 01 | Thymeleaceae | 01 |
| Alliaceae | 01 | Fumiraceae | 01 | Scrophulariaceae | 01 |
| Moraceae | 01 | Oxalidaceae | 01 | Adiantaceae | 01 |
| Malvaceae | 01 | Chenopodiaceae | 01 | | |
| Asclepidiaceae | 01 | Papevaraceae | 01 | | |

Table-2. List of diseases and number of plants used

| Disease | No. of plants used | Percentage of Used plants (%) |
|------------------|--------------------|-------------------------------|
| Stomach problems | 15 | 93.75 |
| Abdominal pain | 13 | 81.25 |
| Body cooling | 3 | 18.75 |
| Gas problems | 3 | 18.75 |
| Dysentery | 3 | 18.75 |
| Worm expulsion | 1 | 6.25 |
| Indigestion | 1 | 6.25 |
| Vomiting | 1 | 6.25 |
| Diarrea | 1 | 6.25 |
| Constipation | 1 | 6.25 |

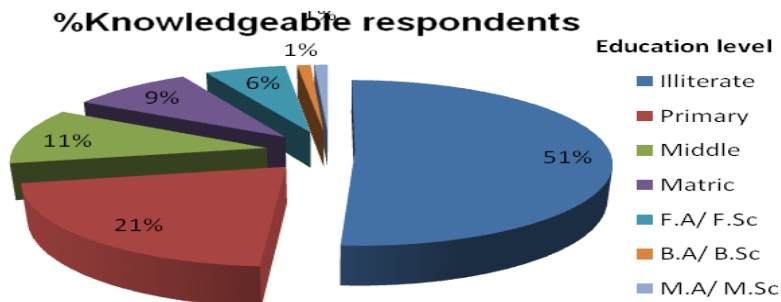


Figure 2. Level of statistics in numerous age groups

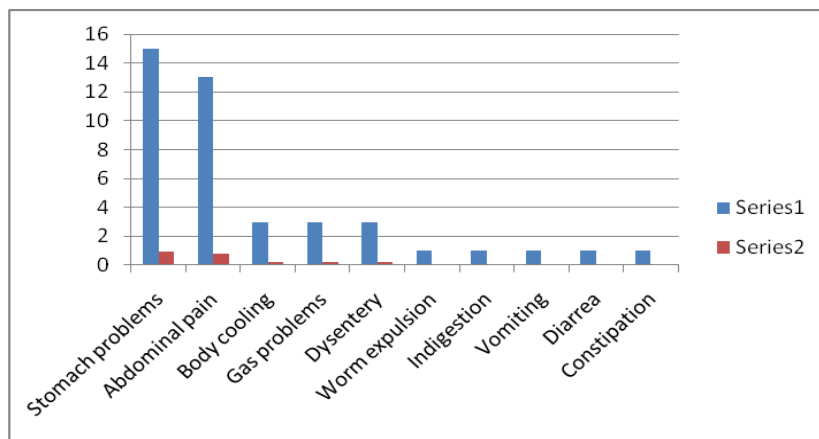


Figure 3. Number of plants used for diseases

CONCLUSION

Accumulating, handling and using the wild plants are still experienced in all the studied ethnic populations of FR Bannu, Pakistan. Due to increase in the healthcare facilities in the area, herbal medication looked to be more correlated to healthcare and ailment stoppage than medication. Pharmacological studies on the therapeutic properties of the home-grown plants cited in this study are compulsory in order to examine their claimed scientific properties and the use of their effective mixtures to produce natural and useful drugs. Presently, there is no data on the herbal plants used to treat gastrointestinal disorders among the people of target area. Consequently, these conclusions are significant for the management of gastrointestinal disorders and to conduct future studies on traditional medicine for drug development.

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Table-3. Distribution of species in families

| S. No | Family name | Botanical name | Local name | part uPart used | Flowering season | Local uses |
|-------|-----------------|---|------------|---------------------|------------------|---|
| 1 | Adiantaceae | <i>Adiantum Capillusveneris</i> L. | Unknown | Rhizome | June | Decoction of rhizome mixed with milk and also sometimes with plantago seeds for stomach ulcer. |
| 2 | Alliaceae | <i>Allium sativum</i> L. | Wezayah | Bulb / Leaves | Mar /Apr | Bulb juice is mixed with curd for stomach problems. |
| 3 | Amaranthaceae | <i>Achyranthes aspera</i> L. | Azghikayah | aves | May/ Jun | Juice of leaves is mixed with milk to stop severe pains of stomach. |
| | | <i>Amaranthus Viridis</i> L. | Ranzaka Ha | Seeds/Leaves | June | Seeds are mixed with butter for gastric problems. |
| 4 | Apiaceae | <i>Foeniculum vulgare</i> Mill. | Soop | Fruit | May/June | The seeds are used in tea and are useful in eviction of gases. |
| 5 | Asclepidiaceae | <i>Calotropis Procera</i> (willd) R.Br (AC) | Spalmakah | Bud | May | Buds extract is mixed with sugar which is used to eradicate stomach troubles. |
| 6 | Brassicaceae | <i>Lepidium sativaum</i> L. | Alum | Fruit | Mar/April | The seeds infusion is used to treat abdominal pain. |
| 7 | Caesalpiniaceae | <i>Cassia fistula</i> L. | Gerdanali | Seeds | Apr/May | Seeds infusion is used as stomachic and colic in children's. |
| 8 | Chenopodiaceae | <i>Chenopodium murale</i> L. | Mardorboty | Whole plant | Jul-/Aug | Cooked leaves are a rich source of vitamin to remove abdominal pain, stomach pains and worm dismissal. |
| 9 | Fumiraceae | <i>Fumaria indica</i> Husskin | Unknown | Leaves | Mar/Apr | Crushed leaves and the extract is mixed with water and some amount of sugar and is used to treat abdominal complications. |
| 10 | Lamiaceae | <i>Ajuga bracteosa</i> Wal | Unknown | Leaves | Mar/Apr | Grinded leaves are mixed with sugar and used for abdominal pain and cooling. |
| | | <i>Menthe arvensis</i> L. | Potna | Leaves/Aerial parts | May/June | Leaves extract mixed with curd to remove abdominal pain and also used for vomiting. |
| 11 | Liliaceae | <i>Aloe vera</i> (L.) Burm. | Zargoyah | Leaves | Apr/ May | Juice of leaves is mixed with milk and is used to cure piles. |
| 12 | Malvaceae | <i>Abutilon indicum</i> (L) Sweet | Khuso beta | Leaves | Mar/April | Infusion of leaves is used 4 to 5 times a day and is suitable to cure severe stomach pains. |
| 13 | Meliaceae | <i>Malia Azadirachta</i> Linn. | Bakanrah | Leaves | Aug/Sep | Leaves infusion mixed with curd and slight quantity of sugar supplied to cure dysentery |
| 14 | Moraceae | <i>Morus laevigata</i> Wall.exBrandis | Shahtot | Bark | Apr/May | Bark extract is mixed with milk to stop burning of stomach. |

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|----|------------------|----------------------------------|---------------------------|-----------------|------------------|---|
| 15 | Oxilidaceae | <i>Oxalis corniculata</i> L. | Tarvekha h | Whole plant | June | The plant extract is used to stop inflammation of stomach. |
| 16 | Papaveraceae | <i>Papaver someniferum</i> Linn. | KashQash | Latex- /Seed | May/June | Seeds are mixed with curd used to reduce abdominal pain, diarrhea, and dysentery and also act as cooling agents. |
| 17 | Plantaginaceae | <i>Plantago ovate</i> Forssk. | Aspeghoo l | Seeds | Apr/May | Seeds and banana juice or sugarcane juice and are suitable in the treatment of stomach and gastric complications. |
| 18 | Poaceae | <i>Cyperus rotundus</i> L. | Delaii | Rhizome | Jun/July | Powder of rhizome is mixed with curd to get relief from stomach and gastric difficulties. |
| | | <i>Saccharum spontaneum</i> Linn | Kaanah | Leaves | Mar/April | Leaves are grinded and plantago seeds are added, used to remove infection of stomach. |
| 19 | Polygonaceae | <i>Rumex hestatus</i> D.Don | Tarokay | Whole Plant | April/May | Boiled seeds mixed with gum of (<i>A. nilotica</i>) then mixed with milk and are beneficial to heal wounds and abdominal pain. |
| 20 | Portulacaceae | <i>Portulaca oleraceae</i> L. | Warkhora | Whole plant | Apr/May | The leaves infusion is used to remove abdominal pain. |
| 21 | Punicaceae | <i>Punica granatum</i> L. | Anar | Seeds | Apr/May | Seeds are mixed using curd to treat urinary tracts infections, headache, abdominal pain and common cold. |
| 22 | Scrophulariaceae | <i>Verbescum Thapsus</i> L. | Kharghaw ag | Leaves | Mar/Apri | Crushed leaves are mixed with Brassica oil and are used to get relief from abdominal pain and also to get relief from constipation. |
| 23 | Solonaceae | <i>Solanum surretense</i> Burm. | Warehye marahgen ye | Roots | Jun/ July | Root powder is mixed with sugar and is used to remove stomach troubles. |
| 24 | Thymeleaceae | <i>Thymus sarphylum</i> L. | Sperikai | Fruit | Jun/July | Fruits directly eaten to treat adominal pain and also used to increase body temperature. |
| 25 | Zingiberiaceae | <i>Curcuma longa</i> L. | Kurkama nh | Rhizome | Oct/Novem ber | The rhizome decoction is used to treat abdominal pain. |
| | | <i>Zingiber officinale</i> Rosc. | Adrakh | Rhizome | May/June | The rhizome decoction is used to get relief from stomach complications. |

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