MEDICINAL PLANT FORMULATIONS OF THE MUSOHOR TRIBE
OF BIRGANJ IN DINAJPUR DISTRICT, BANGLADESH

Fahmida Rahman and Mohammed Rahmatullah*

Department of Pharmacy, University of Development Alternative, Lalmatia, Dhaka, Bangladesh.

ABSTRACT

Background: The Musohors constitute a small tribe residing in Birganj Upazilla (sub-district) in Dinajpur district of Bangladesh. Since relatively nothing has been reported on their traditional medicinal practices, the objective of the present study was to document the medicinal plants and formulations used by the traditional practitioners of the tribe. Methods: Interview of the tribal medicinal practitioner (TMP) was carried out with the help of a semi-structured questionnaire and the guided field-walk method. Results: The TMP used a total of 21 plants distributed into 18 families in 9 formulations used for treatment. The various diseases treated included leucorrhea, urinary stone, syphilis, gonorrhea, lack of enough milk in nursing mother, filariasis, gastrointestinal disorders, anorexia, mental disorder, headache, edema and pain. Conclusion: The medicinal plant knowledge of the Musohor TMP can prove useful in localized treatment of several common disorders.

KEYWORDS: Musohor, medicinal plants, Dinajpur, Bangladesh.

BACKGROUND

The Musohors are a community inhabiting the Birganj Upazilla in Dinajpur district of Bangladesh. The Mushohor tribe is the smallest ethnic group in the Birganj, making up only a fraction of the total tribal population. There are no divisions in the Mushohor tribe. They speak in Hindi language. They have the same customs and culture, and profess the same religion, which is Hindu Religion (Sonaton). The Mushohor people came from India to Bangladesh possibly in the 15th century.
The Musohors are a male dominated society with their own traditions and culture. At present there are about 100 families present within the tribe, each family consisting of 4-7 persons. They mainly work as agricultural laborers. They are fond of tattooing their bodies. The tribe has its own traditional medicinal practices of which practically nothing has been reported thus far.

We had been conducting ethnomedicinal surveys among folk medicinal and tribal medicinal practitioners for a number of years.\textsuperscript{[1-20]} The objective of the present study was to document the traditional medicinal practices of the Musohor tribe for such traditional practices are rapidly getting forgotten or lost.

\section*{METHODS}

The tribal medicinal practitioner (TMP) who was interviewed was named Ganesh Rishi, by gender male. Prior informed consent was initially obtained from the TMP. The TMP was informed as to the nature of our visit and consent obtained to disseminate any information provided including his name both nationally and internationally. Actual interviews were conducted in the Bengali language, which was spoken fluently by the TMP as well as the interviewers. The interviews were conducted with the help of a semi-structured questionnaire and the guided field-walk method of Martin \textsuperscript{[21]} and Maundu. \textsuperscript{[22]} In this method the TMP took the interviewers on guided field-walks through areas from where he collected his medicinal plants or plant parts, pointed out the plants, and described their uses. All plant specimens were photographed and collected on the spot, pressed, dried and brought back to Bangladesh National Herbarium at Dhaka for identification. Voucher specimens were deposited with the Medicinal Plant Collection Wing of the University of Development Alternative.

\section*{RESULTS}

The Musohor TMP used a total of 21 plants distributed into 18 families in 9 formulations used for treatment. The various diseases treated included leucorrhea, urinary stone, syphilis, gonorrhea, lack of enough milk in nursing mother, filariasis, gastrointestinal disorders, anorexia, mental disorder, headache, edema and pain. The results are shown in Table 1.

There were several characteristic features in the TMP’s formulations. All formulations were polyherbal, i.e. consisting of more than one plant or plant part for treatment of one or several diseases. Second, during the period of medication and independent of formulations used or
diseases treated, the TMP advised the patient(s) to avoid food containing high amount of proteins in their diet. Third, and which was possibly because of having some sort of numerical significance that has to do with culture-religious traditions, the TMP advised using 125 ml or multiples of 125 ml (like 625 ml) of water or juice from plant parts. A very unusual feature of the TMP’s 9 formulations was the use of a hornet’s and a wasp’s nest in one of his formulations along with parts of two plants to treat filariasis. Fruits of *Piper nigrum* were used in a number of the TMP’s formulations along with other plants.

The most complex formulation using the most number of plants of the TMP was used to treat leucorrhea, syphilis, gonorrhea, and urinary stone formation. Paste was prepared from 3 inch root of *Ananas sativus*, 3 inch root of *Centella asiatica*, 1/5th root of mature *Tinospora cordifolia*, and whole root of *Bombax ceiba*. Paste was mixed with 625 ml juice obtained from crushing the trunk of *Musa sapientum* and leaves of *Pterocarpus marsupium* till it became sticky. The mixture was then filtered and 125 ml of the filtrate was advised to be taken orally daily on an empty stomach till cure.

**Table 1: Medicinal plants and formulations of the Musohor TMP of Dinajpur district, Bangladesh.**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Scientific Name</th>
<th>Family Name</th>
<th>Local Name</th>
<th>Parts used</th>
<th>Ailments and mode of medicinal use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><em>Amaranthus spinosus</em> L.</td>
<td>Amaranthaceae</td>
<td>Kanta khuria</td>
<td>Root</td>
<td>Leucorrhea, removal of urinary stone. Paste of 5-6 inches of <em>Amaranthus spinosus</em> root, 3 inch of <em>Ananas sativus</em> root and 16g of <em>Cyperus</em> sp. Root is mixed with water. 125 ml of the water is taken once daily orally on an empty stomach for 15 days. After this period one leaf of <em>Piper betle</em> and 3-4 pieces of outer covering of <em>Myristics fragrans</em> nut are taken orally twice daily in the morning and evening at 12h intervals. And continued for 4 days. During this time any intake of protein should be avoided. Constipation. Paste of 7 roots is massaged around the navel once. During this time any intake of protein should be avoided.</td>
</tr>
<tr>
<td>2</td>
<td><em>Centella asiatica</em> (L.) Urb.</td>
<td>Apiaceae</td>
<td>Kochulot</td>
<td>Root</td>
<td>Leucorrhea, syphilis, gonorrhea, removal of urinary stone. Paste is prepared from 3 inch root of <em>Ananas sativus</em>, 3 inch root of <em>Centella asiatica</em>, 1/5th root of mature <em>Tinospora cordifolia</em>, and whole root of <em>Bombax ceiba</em>. Paste is mixed</td>
</tr>
<tr>
<td>No.</td>
<td><strong>Plant</strong></td>
<td><strong>Family</strong></td>
<td><strong>Part</strong></td>
<td><strong>Action</strong></td>
<td></td>
</tr>
<tr>
<td>-----</td>
<td>-----------</td>
<td>------------</td>
<td>----------</td>
<td>------------</td>
<td></td>
</tr>
</tbody>
</table>
| 1   | *Musa sapientum* L. | Musaceae | Trunk | with 625 ml juice obtained from crushing the trunk of *Musa sapientum* and leaves of *Pterocarpus marsupium* till it becomes sticky. The mixture is then filtered and 125 ml of the filtrate is taken orally daily on an empty stomach till cure. During this time any intake of protein should be avoided. See *Citrus aurantifolia*.
| 2   | *Pterocarpus marsupium* Roxb. | Fabaceae | Leaf | To increase lactation in nursing mother. Paste is prepared from 5 roots of *Calotropis gigantea* and 21 fruits of *Piper nigrum*. The paste is mixed with 625 ml water and filtered. 125 ml of the filtrate is taken orally twice daily. During this time any intake of protein should be avoided.
| 3   | *Calotropis gigantea* R.Br. | Apocynaceae | Akanda | Root | To increase lactation in nursing mother. Paste is prepared from 5 roots of *Calotropis gigantea* and 21 fruits of *Piper nigrum*. The paste is mixed with 625 ml water and filtered. 125 ml of the filtrate is taken orally twice daily. During this time any intake of protein should be avoided.
| 4   | *Blumea lacera* DC. | Asteraceae | Kukurmuta | Leaf | Filariasis. One hornet’s nest, one wasp’s nest and upper aerial part of *Bambusa glaucescens* are burned together. Juice from 6 leaves of *Blumea lacera* is added to ashes and the mixture applied topically to swollen areas. During this time any intake of protein should be avoided.
| 5   | *Bombax ceiba* L. | Bombacaceae | Shimul | Root | See *Centella asiatica*.
| 6   | *Ananas sativus* (L.) Merr. | Bromeliaceae | Anarosh | Root | See *Amaranthus spinosus*. See *Centella asiatica*.
| 7   | *Canna indica* L. | Cannaceae | Poairi ful | Root | Blood dysentery (locally called malaena), diarrhea. 125 ml juice from crushed roots of *Canna indica* is slightly warmed and taken orally with two and half (3 pieces in case of diarrhea) pieces of fruits of *Piper nigrum* on an empty stomach. During this time any intake of protein should be avoided.
| 8   | *Cyperus sp.* | Cyperaceae | Kenna | Root | See *Amaranthus spinosus*.
| 9   | *Pterocarpus marsupium* Roxb. | Fabaceae | Bijolghata | Leaf | See *Centella asiatica*.
| 10  | *Ocimum tenuiflorum* L. | Lamiaceae | Tulshi | Leaf | See *Aegle marmelos*.
| 11  | *Tinospora cordifolia* (Willd.) Miers | Menispermaceae | Gulancha | Root | See *Centella asiatica*.
| 12  | *Musa sapientum* L. | Musaceae | Kola | Trunk | See *Centella asiatica*.
| 13  | *Myristica* | Myristicaceae | Joyitri | Outer | See *Amaranthus spinosus*.
<table>
<thead>
<tr>
<th>Page</th>
<th>Species</th>
<th>Family</th>
<th>Part</th>
<th>Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td><em>Piper betle</em> L.</td>
<td>Piperaceae</td>
<td>Leaf</td>
<td>See <em>Amaranthus spinosus</em>.</td>
</tr>
<tr>
<td>15</td>
<td><em>Piper nigrum</em> L.</td>
<td>Piperaceae</td>
<td>Fruit</td>
<td>See <em>Curcuma caesia</em>. See <em>Calotropis gigantea</em>. See <em>Clerodendrum viscosum</em>. See <em>Canna indica</em>.</td>
</tr>
<tr>
<td>16</td>
<td><em>Bambusa glaucescens</em> (Willd.) Merr.</td>
<td>Poaceae</td>
<td>Upper aerial part</td>
<td>See <em>Blumea lacera</em>.</td>
</tr>
<tr>
<td>17</td>
<td><em>Aegle marmelos</em> Correa</td>
<td>Rutaceae</td>
<td>Leaf</td>
<td>Anorexia, to improve appetite. 125 ml of combined leaf juice of <em>Aegle marmelos</em> and <em>Ocimum tenuiflorum</em> is taken orally daily on an empty stomach till cure. During this time any intake of protein should be avoided.</td>
</tr>
<tr>
<td>18</td>
<td><em>Citrus aurantifolia</em> (Christm.) Swingle</td>
<td>Rutaceae</td>
<td>Fruit</td>
<td>Mental disorder, headache. 625 ml of fruit juice of <em>Citrus aurantifolia</em> is mixed with 250 ml oil and one leaf of <em>Centella asiatica</em> and applied topically to the scalp twice daily in the morning and evening till cure. During this time any intake of protein should be avoided.</td>
</tr>
<tr>
<td>19</td>
<td><em>Clerodendrum viscosum</em> Vent.</td>
<td>Verbenaceae</td>
<td>Root</td>
<td>Edema. Paste is prepared from 5 roots of <em>Clerodendrum viscosum</em> and mixed with 125 ml water and filtered. The filtrate is mixed with 2 crushed fruits of <em>Piper nigrum</em>. 125 ml of the mixture is taken orally once daily till cure. During this time any intake of protein should be avoided.</td>
</tr>
<tr>
<td>20</td>
<td><em>Curcuma aromatica</em> Salisb.</td>
<td>Zingiberaceae</td>
<td>Rhizome</td>
<td>See <em>Curcuma caesia</em>.</td>
</tr>
<tr>
<td>21</td>
<td><em>Curcuma caesia</em> Roxb.</td>
<td>Zingiberaceae</td>
<td>Rhizome</td>
<td>Chronic bronchial pain, abdominal pain. Tablets are prepared from a paste of <em>Curcuma caesia</em> and <em>Curcuma aromatica</em> rhizomes. One tablet and two fruits of <em>Piper nigrum</em> are taken once daily orally with 125 ml water on an empty stomach till cure. If pain is severe tablets are taken twice daily. During this time any intake of protein should be avoided.</td>
</tr>
</tbody>
</table>

**DISCUSSION**

A major difference between modern allopathic medicine and traditional medicines is that while allopathic medicine generally targets diseases with one active ingredient, traditional
medicinal formulations in systems like Ayurveda or Unani (both being present in the Indian sub-continent) are composed of multiple plants or plant parts turning them into polyherbal formulations.

Use of multiple plants can mean a synergistic action between the various plants making the formulation a stronger medicine, or using one plant to treat the disease and along with, other plants to treat any other symptoms of the disease or negating any adverse effects of the major plant.

To analyze one such formulation of the TMP, rhizomes of *Curcuma caesia* and *Curcuma aromatica* were used along with fruits of *Piper nigrum* to alleviate chronic bronchial and abdominal pain. The methanolic extract of *Curcuma caesia* rhizome has been shown to exert analgesic and anti-inflammatory effects in laboratory animals using acetic acid induced writhing model and hot plate tests. [23]

The anti-inflammatory and wound healing activity of *Curcuma aromatica* rhizomes have also been reported. [24] The analgesic and anti-inflammatory activities of *Piper nigrum* fruits have also been reported. [25] Thus the three plant parts in combination can serve to alleviate pain and inflammation, as well as to heal wounds. The scientific reports suggest that the TMP used his medicinal plants with a good knowledge on their properties.

**CONCLUSION**

The various polyherbal formulations of the TMP merit scientific research as to their efficacies when used in the polyherbal forms. Scientific validations can make these formulations a readily affordable source for treating a number of diseases.

**Conflicts of interest:** The authors declare that there are no conflicts of interest.

**REFERENCES**


11. Rahmatullah M, Hasan A, Parvin W, Moniruzzaman M, Khatun Z, Jahan FI, Jahan R: Medicinal plants and formulations used by the Soren clan of the Santal tribe in Rajshahi


