Nineteen Macrophytic new reports for the Keibul Lamjao National Park, Loktak Lake, Manipur, India

M.H. Devi¹, P.K. Singh² and M.D. Choudhury³

¹,³ Department of Life Science, Assam University, Silchar, Assam, India
² Ethnobotany and Plant Physiology Lab., Department of Life Sciences, Manipur University, Imphal, Manipur, India

Corresponding author: Email: potsangbamk031@gmail.com

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Abstract

Macrophytes of the six study sites of Keibul Lamjao National Park, Loktak Lake, Manipur, namely: (1) Keibul, (2) Nongmaikhong, (3) Kumbi, (4) Khordak, (5) Sargam and (6) Toyaching has been investigated, for the flora of floating Phumdi mat vegetation. The newly reported 19 species of plants [Clinopodium umbrosum (M. Bieberstein) C. Koch, Capparis sabifolia Hooker f. & Thomson, Cyperus platystylis R. Brown, Eleocharis congesta D. Don, Eleusine indica (Linnaeus) Guettner, Fimbristylis tetragona R. Brown, Floscopa scandens Loureiro, Hygroryza aristata Nees, Mariscus sieberianus Nees, Melothria leucocarpa (Blume) Cogniaux, Phragmites communis Trin., Pogonatherum rafobarbatum Griffith, Pogostemon hirsutus Bentham, Saccolepis interrupta (Wildenow) Stapf, Sagittaria guayanensis Humboldt, Bonpland & Kunth, Scleria levis Retzius, Setaria pumila (Poiret) Roemer & Schultes, Spiranthes sinensis (Persoon) Ames, and Uraria lagopus DC. were recorded from the KLN for the first time.

Key Words: Keibul Lamjao National Park, Macrophytes, New reports

INTRODUCTION

Keibul Lamjao National Park (KLN), Loktak Lake, Manipur in Northeast India supports aquatic and wetland vegetation and is unique being a Ramsar site of international importance and the development of floating mats (phumdi), which represents a heterogeneous mass of soil vegetation and organic matter in different stages of decay. Wetlands are the areas of marsh, fen, peat land, whether nature or artificial, permanent with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters (Article 1.1 of Ramsar Convention). Loktak lake as a Ramsar site (26, 6000 ha; 24°26’ N 093°49’ E, added to the Montreux Record, 16 June 1993. Ramsar Site No. 463). Keibul Lamjao National Park (KLN) is the only floating National Park in the World (Fig. 1). The Park is located in the South Western corner of Loktak Lake. The Park covers an area of 40 km². It has distinct geographical zones: Phumdi (floating mat) area i.e. floating portion covering about 29 km², water body area of about 9 km² surrounding the floating portion, Landmass (2 km²) comprising of hillocks namely Chingmei, Toya and Pabot. Phumdis are formed by combination of soil vegetation and organic matter in different stages of decay. The thickness is up to 2 m and remains floating due to buoyancy and low density with about 1/5th part of the thickness remains above the water level.

The Park supports rich macrophytic wetland vegetation. The Park phumdi is very rich in plant diversity. About 48 species of plants have been recorded in the park by Singh &
Figure 1. Study area of Keibul Lamjao National Park (KLNP), Loktak lake, Manipur
singh (1994), 145 species by Shamjai (2002), Deb (1961) listed 125 species, Singh (2002) recorded ethnobotanical uses of 24 plants on the phumdis of Loktak Lake. Some floating plants are the primary plants involved in the formation of phumdi. It had the association of plants species from different groups and families. These plants are very useful as food (wild edible), fuel, medicine, fodder, fencing and for many other purpose. Thickness of the phumdi varies in different parts of the lake. The major plant species growing in the park are very important for shelter and food of the Rucervus eldii eldii – the endangered Manipur Brow antlered deer. Some specific macrophytes growing in the Park and naturally associated with the phumdis are very important for socio-economic problems for day to day life.

METHODOLOGY

Several surveys have been conducted seasonally i.e. the months of February, May, September and November during 2010 to 2011. Plants were identified using available published literature including Devi (2007), Saratchandra (1977), Shamungou (1992, 2000), Shamjai (2002), Sinha (1987 a, b, 1996), Singh (2002), Singh (1991), Singh & Singh (1994), Trisal & Manihar (2004), Clarke (1889), Kaith (1932, 1936), Deb (1956, 1957, 1961 a, b ). The authenticity of the plant was repeatedly verified by contacting various individuals. In case of contradictory information, efforts were made to get the correct uses.

The present paper deals with the macrophytes associated with the phumdis of six study sites of KLNP namely (1) Keibul, (2) Nongmaikhong, (3) Kumbi, (4) Khordak, (5) Sargam and (6) Toyaching (Fig. 1). All the collected plants were processed into mounted herbarium sheets following Jain & Rao (1977) and matched at CAL and ASSAM. Identification of the plants was done referring to authentic books, journal with the help of Botanical Survey of India, Kolkata and Eastern Circle, Shillong. The identified specimens are deposited in the Manipur University Museum of Plants (MUMP), Department of Life Sciences, Manipur University.

RESULTS AND DISCUSSION

Macrophytes of KNLP were studied at various categories by eminent researchers including Shyamjai (2002), Sinha (1987 a, b, 1996), Singh (2002), Singh (1991), Singh & Singh (1994), Trisal & Manihar (2004). However, during the two years period, 2010 to 2011, the seasonal collections of macrophytes helped us to record 19 species of plants for the first time from KNLP. These newly reported plants are coming under 9 families (Poaceae-6, Cyperaceae-5, Lamiaceae-2 and 1 each in Fabaceae, Orchidaceae, Alismataceae, Cucurbitaceae, Commelinaceae and Capparaceae), which were found to be distributed in the six study sites of KLNP (Table 1) and photographs are shown in Plate I. The newly reported plants might be due to unexplored condition or because of the new arrival to the floating mat vegetation.

Table 1. New reports to the macrophytes of KLNP, Loktak Lake, Manipur, Northeast India.

<table>
<thead>
<tr>
<th>Plant name</th>
<th>Family</th>
<th>Exsiccate (Herbarium)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinopodium umbrosum (M. Bieberstein)</td>
<td>Lamiaceae</td>
<td>Haripriya-000563 (MU)</td>
</tr>
<tr>
<td>C. Koch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capparis sabiifolia Hooker f. &amp; Thomson</td>
<td>Capparaceae</td>
<td>Haripriya-000543 (MU)</td>
</tr>
<tr>
<td>Cyperus platystylis R. Brown</td>
<td>Cyperaceae</td>
<td>Haripriya-000540 (MU)</td>
</tr>
<tr>
<td>Eleocharis congesta D. Don</td>
<td>Cyperaceae</td>
<td>Haripriya-000588 (MU)</td>
</tr>
<tr>
<td>Eleusine indica (Linnaeus) Gaertner</td>
<td>Poaceae</td>
<td>Haripriya-000572 (MU)</td>
</tr>
</tbody>
</table>
PLATE I: Fig. 1. Clonopodium umbrosum; Fig. 2. Capparis acutifolia; Fig. 3. Cyperus platystylis; Fig. 4. Eleocharis congesta; Fig. 5. Eleusine indica; Fig. 6. Fimbristylis tetragona; Fig. 7. Floscopa scandens; Fig. 8. Hygroryza aristata; Fig. 9. Melothria leucocarpa; Fig. 10. Phragmites communis; Fig. 11. Pogonatherum rufo-barbatum; Fig. 12. Pogostemon hirsutus; Fig. 13. Mariscus sieberianus; Fig. 14. Saccolepis interrupta; Fig. 15. Sagittaria guayanensis; Fig. 16. Scleria lavis; Fig. 17. Setaria
CONCLUSION

KNLP is a small area of International importance, because of its being the habitat of endemic and endangered Sangai (Rucervus eldi eldi) and other wild animals, but also endemic floating macrophytes, representing a floating mat flora of wetland. The macrophytes reported here are also consumed by Sangai and at the same time these macrophytes are also collected by local people for their daily needs and as medicinal requirements. Therefore, it needs a proper care and attention to protect them from over exploitation.

LITERATURE CITED

Kaith, D.C. 1936. Reports on the Working of Manipur Forest. Horticultural Department, Govt. of Manipur.


