Notes on the pygmy form of *Mnesithea granularis* (Poaceae)

Nagaraju Siddabathula* and K.A.A. Kabeer¹

Botanical Survey of India, Headquarters, Publication Section, CGO Complex, 3rd MSO Building, DF-Block, 5th & 6th Floor, Salt Lake City, Kolkata-700 064, West Bengal, India

¹Central Botanical Laboratory, Botanical Survey of India, Howrah – 711103, West Bengal, India

*Corresponding author: nagaraju.siddabathula@gmail.com

**ABSTRACT**

The morphological features of pygmy form of *Mnesithea granularis* (L.) de Koning & Sosef distributed in different parts of India are compared with the normal form along with colour photographs.

**Keywords:** Ananthagiri hills, Dwarf, *Mnesithea*, Nanism, Phenotypic variations

**INTRODUCTION**

The pantropical genus *Mnesithea* Kunth belongs to the family Poaceae, subfamily Panicoideae, supertribe Andropogonodae, tribe Andropogoneae, subtribe Rottboelliinae (Soreng & al., 2017), and comprises 33 species (Veldkamp, 2013). In India, the genus is represented by nine species and four varieties (Prasanna & al. 2020, Kellogs & al., 2020), of which four species are distributed in southern parts of the country (Nagaraju & al., 2020).

As a part of documentation of diversity and distribution of grasses in Telangana state botanical explorations were conducted frequently in different parts of the state during 2019–2021. During one of the explorations the first author observed a small population of small-sized grass growing in almost soilless rocky crevices of Ananthagiri hills (17.31174° N, 77.86333° E, 666 m), Vikarabad district, Telangana during October to March. After a careful scrutiny of specimens (*S. Nagaraju* BSID008939) along with literature (Fischer, 1934; Bor, 1960; Kabeer & Nair, 2009) and consultation of herbaria (BSID, MH, BSI, CAL), it was identified as *Mnesithea granularis* (L.) de Koning & Sosef, an Old World tropical species, also found in some parts of North and South America as an introduced grass (POWO, 2021). In India, this species is distributed in Andaman and Nicobar Islands, Andhra Pradesh, Bihar, Chhattisgarh, Goa, Gujarat, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Rajasthan, Sikkim, Tamil Nadu, Telangana, Tripura, Uttar Pradesh and West Bengal (Kellogs & al., 2020). This species has been treated under *Hackelochola* by some workers, but Koning & Sosef (1986) merged *Hackelochola* with *Mnesithea*, as the morphological differences between these two genera are not impressive, and made a combination *M. granularis*. Kellogs & al. (2020) also recognized this species under *Mnesithea*, and the same is followed here.

Generally, plants that grow in poor soil, where there is no sufficient food, are likely to be dwarfed. The genetic or physiological stunting of growth of plants or animals is called "nanism". This phenomenon of dwarfism is not hereditary, which has been proved by experiments on a wild grass *Bormus* by Muller & al. (1990). According to Hansen & al. (1917) the limiting of the soil content is possibly the major factor in the production of dwarfing or nanism in plants. Usually, *Mnesithea granularis* occurs in moist and rocky localities, with culms growing to a...
height of 65–70 cm. However, while growing in almost
soilless rocky crevices, the species exhibits nanism in its
growth, probably due to lack of water and other essential
minerals. The heights of culms of *M. granularis* recorded
in some of the Indian works as follows: 10–75 cm high
(Blatter & McCann, 1935); 10–60 cm high (Sreekumar
& Nair, 1990); up to 1 m high (Shukla, 1996); 10–46 cm
high (Kabeer & Nair, 2009); 10–50 cm high (Potdar & al.,
2012); up to 50 cm high (Rao & al., 2017); 10–45 cm high
(Chorghe & Prasanna, 2021).

Though it shows significant quantitative variations in
vegetative characters, the floral characters are almost
similar to the normal form (Fig. 1). The phenotypic
variations between the pygmy form and the normal are
compared in Table 1.
Table 1. Comparison of morphological variations between pygmy and normal form

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Parts</th>
<th>Pygmy form</th>
<th>Normal form</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Culms</td>
<td>5–7 cm high</td>
<td>15–65 cm high</td>
</tr>
<tr>
<td>2.</td>
<td>Nodes</td>
<td>2 or 3</td>
<td>8–12</td>
</tr>
<tr>
<td>3.</td>
<td>Branches</td>
<td>Basal</td>
<td>Caulline</td>
</tr>
<tr>
<td>4.</td>
<td>Leaves</td>
<td>Elliptic-lanceolate, 1–3.5 × 0.1–0.4 cm</td>
<td>Ovate-elliptic, 2–10 × 0.3–0.8 cm</td>
</tr>
<tr>
<td>5.</td>
<td>Inflorescence</td>
<td>Mostly terminal, 5–7.2 mm long</td>
<td>Axillary and terminal, 10–20 mm long</td>
</tr>
</tbody>
</table>

ACKNOWLEDGEMENTS

The authors are thankful to the Director, Botanical Survey of India, Kolkata. First author is also grateful to the Scientist-in-Charge, BSI, Deccan Regional Centre, Hyderabad for facilities, Dr. W. Arisdason, BSI, Southern Regional Centre, Coimbatore for support, Forest officers and field staff of Telangana State Forest Department, Hyderabad for permission and logistic support.

REFERENCES


GOVAERTS, R.H.A. 2011. World Checklist of Selected Plant Families. Published update facilitated by the Trustees of the Royal Botanic Garden, Kew.


