

**Table 5.** Students' response to statements related to contributions of women in science

| Percentage of students opting for | Boys    |            |         | Girls   |            |         |
|-----------------------------------|---------|------------|---------|---------|------------|---------|
|                                   | Overall | Government | Private | Overall | Government | Private |
| Statement 1                       | 80.6    | 87.3       | 75.3    | 75.7    | 86.8       | 66.1    |
| Statement 2                       | 49.3    | 54.0       | 45.7    | 48.7    | 50.9       | 46.8    |
| Statement 3                       | 60.4    | 71.4       | 51.9    | 73.9    | 71.7       | 75.8    |

Figures in columns do not add up to 100 because students were allowed to tick multiple statements.

Statement 1: This was the first time someone spoke to me about women scientists and their achievements.

Statement 2: Before this session, I did not realize that women scientists have contributed so much to science.

Statement 3: After this session I want to learn more about other women scientists.

on their healthy presence in higher education in science.

Survey responses highlight the important roles that schools and parents have in encouraging more students, specially girls towards science. Parents need to be sensitized to be more supportive of their daughter's interests in science and math.

The differences in the responses of students from government and private school, for both boys and girls, indicate that the school and perhaps the socio-economic background of the students play an important role in shaping the students' perception of women in science. Having a more encouraging environment towards science at school can help mitigate male stereotype of science, as well as encourage more students to take up higher studies in science and math.

The positive outcome that can be achieved by sensitizing school children on the achievements and contributions of women in science is corroborated by the students' response to the discussion on inspiring stories of some of the Indian women scientists (Table 5). Almost half of the students, 49.3% of boys and 48.7% of girls, indicated that before the

interaction, they did not realize that Indian women scientists had contributed a lot to science. 60.4% of boys and 73.9% of girls were keen to learn more about women scientists, showing that the students respond well to awareness interventions in an interactive format. Currently this is not happening in a systematic manner. 80.6% of the boys and 75.7% of girls responded that this was the first time someone spoke to them about women scientists and their achievements.

To summarize, the survey results showed that the gender stereotype of science starts taking root at the school level itself, especially amongst boys. Girls are much more confident of the capability and interest of their gender in pursuing higher education in science and math. However, the silver lining is that the rather intuitive and simple solution of spreading greater awareness on achievements of women scientists amongst school students can help address the stereotype. A good starting point for this could be to make the study of contribution of women to science through discussions and project work, a compulsory

part of the school curriculum in middle school.

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## *Ethulia gracilis* Delile (Asteraceae), a new weed record for India

Asteraceae is the second largest angiosperm family after Orchidaceae with *ca* 1,623 genera, *ca* 24,700 species<sup>1</sup>. Many species of Asteraceae are weeds in cultivated fields as well as forest areas. Some of them are aggressive invasive weeds, viz. species of *Acanthospermum* Schrank, *Ageratum* L., *Ambrosia* L., *Bidens* L., *Chromolaena* DC., *Eupatorium* L., *Parthenium* L., *Synedrella* Gaertn., *Wedelia* Jacq., etc. Many of them seriously affect the native or local plant biodiversity, human health and crop productivity.

Genus *Ethulia* L.f. (Greek *aitho*, *aithen* means 'to light up, to burn blaze' or *ethos* means 'habit usage manner' and *oulios* means 'baneful or destructive')<sup>2</sup> probably originated in Asia, but its centre of diversification is Africa<sup>3</sup>. It has about 19 species with 15 of them endemic to Tropical Africa<sup>4</sup>. So far in India, it is represented by two species *Ethulia conyzoides* L.f. distributed in Arunachal Pradesh, Assam, Sikkim and West Bengal<sup>5</sup> and *Ethulia megacephala* Sch. Bip. ex Miq., distributed in Eastern Himalaya

and North-East India<sup>6</sup>. *Ethulia gracilis* Delile is distributed in North Cameroon, Central African Republic, Chad, Sudan, Ethiopia, Uganda<sup>3</sup> and China<sup>7</sup>.

During our survey of plants of Karnataka, we collected some interesting specimens of *Ethulia* L.f. from Nippani-Chikkodi road, Belgavi district. A critical study of these materials, could identify the same as *E. gracilis* Delile. The identity was further confirmed by M. Gilbert (Royal Botanic Gardens, Kew, UK). This is recorded for the first time in India.



**Figure 1.** *Ethulia gracilis* Delile. *a*, Habitat; *b*, Habit; *c*, Flowering capitulum; *d*, Floret; *e*, Fruiting capitulum; *f*, Upper and lower leaf surface; *g*, Achenes.

Description and photographs are provided for easy recognition in the field.

*Ethulia gracilis* Delile in Caill., Voy. Méroé. 4: 334, t.64.1827. Type: Sudan, el-Qerebyn, *Cailliaud* 1826 (MPU 007022 Jstor image!<sup>8</sup>) Figure 1.

Annual, erect herb, up to 60 cm tall. Stems erect, branched towards upper part, striate, adpressed puberulent. Leaves subsessile to sessile, narrowly lanceolate, 4–10 × 1–2 cm, narrowly cuneate at base, obscurely or sparsely dentate at margin, acute at apex, midrib distinct with 10–15 pairs of secondary veins adpressed puberulent, white beneath. Heads homogamous on terminal panicles, peduncles 1–7 mm; involucre hemispheric to globose; phyllaries 3-seriate. Florets 10–25; corolla pale lilac to mauve-purple, tubular, 2–2.5 mm, corolla 5-lobed, sparsely hairy on margin and outside, tube curved in the middle; stamens 5, syngenesious, 1–1.5 mm; style 2–3 mm long sparsely hairy, stigma 2-fid. Achenes subcylindric, 0.8–1.5 mm, 4–6-ribbed, with glands in 1–3 rows between ribs; pappus absent.

Distribution: India (Karnataka: Belgavi district); China, Cameroon, Central African Republic, Chad, Ethiopia, Sudan, Uganda.

Flowering and fruiting: July–November.

Habitat: Weed in open areas as well as agricultural fields in association with *Ageratum conyzoides* L., *Celosia argentea* L., *Euphorbia hirta* L., *Tridax procumbens* L. and *Vernonia cinerea* (L.) Less.

Specimens examined:

India, Karnataka, Belgavi district, Nippani, 16°24.202'N, 74°27.038'E, 617 m, 10.9.2017, *J. V. Dalavi* and *S. R. Yadav* JVD 801; Nippani–Chikkodi road, 16°24.210'N, 74°27.050'E, 620 m, 18.9.2017, *S. R. Yadav* and *J. V. Dalavi* JVD 802 (SUK!).

Note: This exotic weed has been recorded for first time in India. Being an Asteraceae member with high percentage of viable seed production, it is likely to become an invasive weed in cultivated fields as well as fallow lands and other disturbed soils like the species of *Chromolaena*, *Parthenium*, *Synedrella*, etc. How the species was introduced in India is a serious issue of concern. Asteraceae members freely interbreed and produce innumerable viable seeds in a single generation. The species can easily propagate in all habitats, negatively affecting native flora, crop production and human health as well. A number of other exotic weeds of Asteraceae such as *Ageratum conyzoides* (L.) L., *Chromolaena odorata*

(L.) R.M. King & H. Rob., *Mikania micrantha* Kunth., *Parthenium hysterophorus* L., *Synedrella nodiflora* (L.) Gaertn. and many more have caused great damage to agricultural crops and forest vegetation; therefore, *E. gracilis* Delile needs to be eradicated before its spreads. Thus, the report of occurrence of this exotic weed is of great importance and concern for India.

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