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FIRST PHOTO EVIDENCE OF *Gametis jucunda* (Faldermann, 1835) (COLEOPTERA: SCARABAEIDAE: CETONIINAE: CETONIINI) AS FLOWER VISITORS OF *SALIX* SP. FROM THE HIGH ALTUTUDE OF WEST BENGAL

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Abstract

The smaller green flower chafer, *Gametis jucunda*, has been observed foraging on *Salix* sp. (Willows) at an altitude of 2,621 meters in Gairibas, North Bengal. The male flowers of *Salix* sp. are sweet, scented catkins (5–10 cm) and grow on leafy branchlets, while the female catkins are 8–12 cm long. The beetles' foraging activity is mainly early in the morning, starting at 7.00 am and gradually decreasing by 9.30 am. They are primarily seen foraging on the whitish flowers of the plant, and occasionally found mating on the leaves and flowers of the *Salix* plant.

1. Introduction

Among the five major groups of pollinating insects, nearly half of all herbivorous insect species are beetles (Farrell, 1998), and most herbivorous beetles are drawn to angiosperms (McKenna et al., 2019). In India, research on beetle pollination (cantharophily) has received relatively little attention compared to studies on melittophily, myophily, psychophily, and phalaenophily (Chatterjee and Mitra, 2004).

In a recent publication, it has been estimated that 110 species (identified/unidentified) under 15 families of order Coleoptera reported as visitors/pollinators from India. Among them, the members of the family Scarabaeidae or Dung beetles are the dominant group of pollinators. In India, the highest number of beetle species (14) are reported as pollinators from this family. Moreover, 11 species of plants (11 families) are dependent on these beetles for their successful pollination in India (Paul et al, 2021).

Gametis is a genus of flower chafer beetles found in Asia, with 11 species worldwide, four of which are described from India (Arrow, 1910). *Gametis jucunda*, known as the smaller green flower chafer (Klein and Edwards, 1989), is primarily found in Japan. This species has been recorded as a flower visitor of *Caesalpinia bonduc*, *Rhus chinensis*, and *Schima superba* in Hong Kong (Yiu, 2010). *Gametis jucunda* is a moderately-sized beetle, measuring 11-16 mm in length and 6-8 mm in width (Arrow, 1910). Its color varies from green, olive, red, dark blue, to black, with a thin dorsal covering and a thick ventral covering of tawny hairs and setae, adorned with yellow markings. The pronotum has a discoidal yellow spot and marginal line, and each elytron features three to four yellow markings on the outer margin and around three near the inner margin (Yiu, 2010).

Gametis jucunda (Faldermann, 1835) was first reported by Chatterjee & Mitra (2004) as pollinators of *Cirsium wallichi* or Thistle plant (Asteraceae) and *Castanea sativa* or sweet chestnut (Fagaceae) from Himachal Pradesh as well as from India. This species is widely distributed in Arunachal Pradesh, Assam, Himachal Pradesh, Maharashtra, Manipur, and Meghalaya, Sikkim, Uttarakhand, and West Bengal of India (Arrow,1910).

2. Result & Discussion

Present communication records the visual foraging activities of beetle species of family Scarabaeidae, *Gametis jucunda* under the superfamily Scarabaeoidea on *Salix* sp. (Willows) of the family Salicaceae. Salix sp. is a medium to large tree growing up to 10–30 m tall (Fig.1a) The leaves of *Salix* sp. are lance-like, or ovate-lancelike (fig.1b.), The male sweet, scented catkins are 5–10 cm long and are borne on leafy branchlets (fig.1b.) The female catkins are 8–12 cm long.

The study was carried out in the compound of Gairibas Govt. Guest House at an altitude of 2,621 meters. This area is predominantly covered with *Salix* plants along with other high-altitude plant species. During the investigation in April 2021, *Gametis jucunda* was observed as a regular visitor to *Salix* plants throughout the flowering season. The investigation revealed that *Gametis jucunda* commenced foraging activity early in the morning at 7:00 am, with activity gradually decreasing by 9:30 am. They were mostly seen in groups of 2-4 individuals or more (Fig.1c), foraging primarily on the whitish flowers of the plants (Fig.1c) or sometimes in mating conditions on the leaves (Fig.1d) and flowers (Fig.1e) of the *Salix* plant. During this process, the dorsal surface of the beetles' head, thorax, and legs came into contact with exposed anthers, leading to the accumulation of a profuse powdery pollen mass on their bodies.

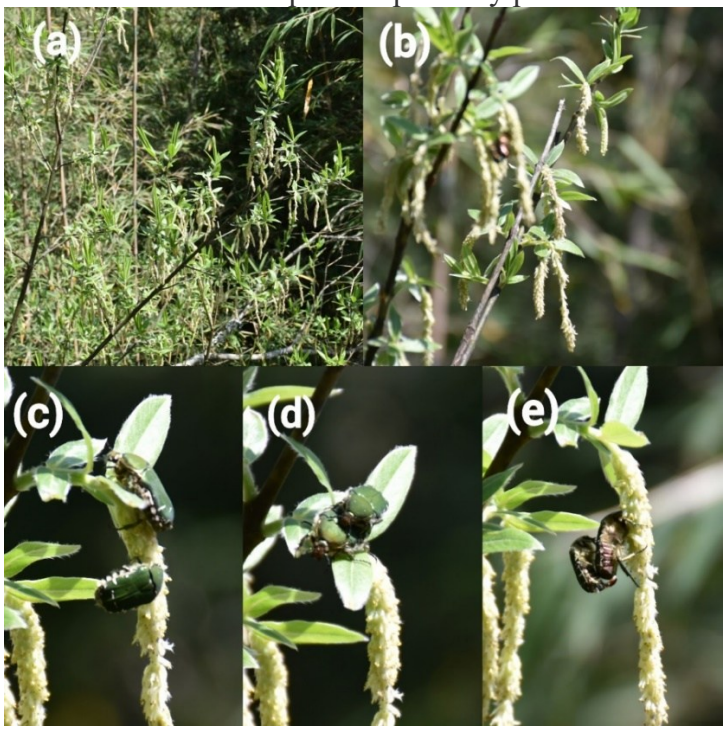

Fig.1a. *Salix* tree at Gairibas Fig. 1b. Leaves and flowers of *Salix* sp. Fig.1c. *Gametis jucunda* foraging on the flower of *Salix* sp.Fig.1d. *Gametis jucunda* mating on the leaves of *Salix* sp. Fig.1e. *Gametis jucunda* mating on the flower of *Salix* sp.

Traditionally, beetles that visit flowers are dull in coloration and highly scented, so the beetles do not use or are not reliant on spectral cues to detect flowers (Faegri and Van der Pijl, 1979). Given the crucial role beetles play in pollination, it is evident that there has been limited research on flower-visiting beetles in India. This is likely the second report of *Gametis jucunda* acting as visitors or pollinators in the country.

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