

Macrosiphum fagopyri feeding on Fagopyrum dibotrys in the Sikkim and Darjeeling Himalaya

Sikkim Himalaya is the part of the biological hotspot of the world and bestowed rich fauna and flora where the aphid diversity cannot be ignored as these creatures depend on food plants to a large extent.

Fagopyrum dibotrys (D.Don) Hara is the potential medicinal plant for curing several ailments (Watanabe 1998) and contains appreciable amounts of rutin, but it was noted that it was affected by the aphid, Macrosiphum fagopyri Ghosh & Raychaudhuri, 1972, found underneath the leaves in the Sikkim and Darjeeling Himalaya. So, these were considered for the study of rutin content in both aphid and food plant. The plant specimen, Fagopyrum dibotrys, was collected from the Sikkim Himalaya, Gangtok, and investigated its active principle correlating with the content of the Macrosiphum fagopyri. The method of Sakamato & Takamua (1978) followed to isolate the rutin from the leaves and aphid using the methanol extract.

New record: *Macrosiphum fagopyri* Ghosh & Raychaudhuri, 1972; 27.3353° N & 88.6186° E; Date of Collection :13.06.1998. Deposited: QCL-HARC, Sikkim; Coll. D.K Pradhan. *Fagopyrum dibotrys* (D.Don) H. Hara, Fl. E.



Himal. 69. 1966; *Polygonum cymosum* Trevian Delect Sem. Hor Vartisl. 1824; *Polygonum dibotrys* D. Don, Prodr. Fl. Nepal. 73. 1825.

Fagopyrum dibotrys is a source of rutin having the potential of production of rutin in 4.8 to 8.5% (Basu & Pradhan 2000). There are three species of *Fagopyrum* namely, *F. tataricum* (L.) Gaertn., *F. esculentum* Moench, and *F. dibotrys*, found in Sikkim. Moreover, there is the report of existence of two varieties



of *F. dibotrys*, inter alias, *F. dibotrys* var. *alba* Basu & Pradhan and *Fagopryum dibotrys* var. *dibotrys* (Basu & Pradhan 2000; Pradhan 2020).

It was observed that the aphids affected the young as well as the mid-aged leaves of the plant. Thus, the aphid specimen studied and identified as Macrosiphum fagopyri Ghosh & Raychaudhuri, 1972 referring to the literatures (Chakrabarti 1972; Chakarbarti et al. 1972b; Ghosh & Raychaudhuri 1972; Ghosh 1980; Raychaudhuri 1980). In addition to this, there were some reports of F. macutatum (Lehm.) Mansf. ex Hammer as the aphid's food (Chakrabarti 1972; Ghosh 1980; Raychaudhuri 1980). Referring to the UV spectrophotometer and infra-red peaks as well as relative flows of the isolated crystals of aphid's methanolic extract, it was confirmed that the aphids contained the rutin in appreciative amounts. This finding indicates that the rutin content in Macrosiphum fagopyri Ghosh & Raychaudhuri 1972 may have biological role, as ecdysone, for the aphids moulting which supports similar studies on the roles of rutin in the aphid moulting (Horwath & Stamp 1993).

Conclusion

The occurrence of *Macrosiphum fagopyri* on the food plant *Fagopyrum dibotrys* in the Sikkim and Darjeeling Himalaya is a new report.

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