Área: QPN

Phytochemical evaluation of ethyl acetate extracts of *Trembleya parviflora* and its parasite *Passovia ovata* through molecular networking

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Highlights

Parasitic and host plants share flavonoids, revealed by LC-MS/MS and molecular networking.
Flavonoids may play a role in parasite-host chemical interactions.

Abstract

Plant parasitism has emerged at least twelve times during the evolution of angiosperms. It is currently defined by the presence of a specialized structure produced by the parasitic species to invade the host tissue, known as the haustorium. This study aimed to evaluate the chemical sharing relationships between the parasitic plant *Passovia ovata* (DC.) Kuijt and its hosts *Trembleya parviflora* (D.Don) Cogn. Fresh leaves of *T. parviflora*, both parasitized (yellow) and non-parasitized (green) by *P. ovata* (red), were collected and identified in the Brasília Botanical Garden area. The leaves were successively macerated with 400 mL of hexane for 60 minutes in an ultrasonic bath (40°C), followed by ethyl acetate and ethanol. The extracts were concentrated and analyzed by LC-MS/MS using a Shimadzu chromatograph coupled to an ESI-qTOF mass spectrometer (Bruker) with a C18 column (25 cm × 4.6 mm, 5 µm particle size), and a flow rate of 1 mL/min (mobile phases water-A and methanol-B, both 0.1% formic acid). Positive ionization mode was used. The obtained data were converted to mzXML format and submitted to GNPS. The molecular network revealed a total of 723 organized nodes, with 22 clusters containing nodes distributed across the three groups (non-parasitized, parasite, and parasitized). For further analysis, only nodes containing substances common to all three groups were selected. Four clusters stood out due to the presence of compounds shared among all three groups. The first cluster, corresponding to compounds with retention times of 34–38 min, showed hits in the GNPS library with terpenes; however, molecular formula calculations did not allow for confirmation. The second cluster contained methoxylated and O-glycosylated flavonoids. The third and fourth clusters featured non-glycosylated and glycosylated flavonoids with retention times between 15.9 and 17.5 min. These findings demonstrate the sharing of flavonoids between parasitic and host plants, which will be further confirmed by expanding the sample group to include other host species. The isolation of compounds from cluster 1 may reveal other chemical classes involved in this sharing process.

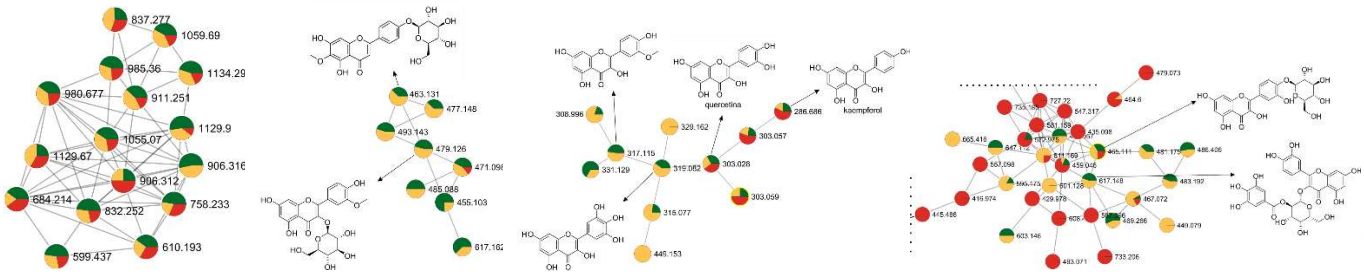

Fig 1. Clusters analysed in the molecular networking.

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