
Chemical Ecology of fruit pulp – A case study with *Tamarindus indica*, L.

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Abstract

Allelopathic effects through root, stem and leaves have been well documented but the effects mediated by fruit pulp has not been done so far. Majority of tree species contain inhibitors of germination in their fruit pulp. This makes sense in the ecological perspective, for, such inhibitors would not only prevent premature germination of seeds in the fruit on the tree but also of those dropped from the tree and lying below. It is thus our interest to study the chemicals in the fruit pulp and their ecological significance. *Tamarindus indica* L. is a native and widely distributed species of Asia which is of immense economic as well as traditional importance. The tamarind tree produces edible pod-like fruits. The fruit pulp is used as food preservative and as a traditional medicine in every household from the time unknown in India. Methanol Fraction, the major component of Tamarind fruit pulp revealed the presence of a strong acidulous compound in the fruit pulp. Identification and molecular elucidation of this strong sourish compound are in progress. The crude extract as well as the methanol fraction showed 100% inhibition of germination at a concentration of 500ppm on rice seed bioassay. MIC₅₀ value of shoot length of both methanol fraction and crude extract are 200ppm and 250ppm respectively whereas it is 225ppm and 275ppm in case of root length. At a concentration of 400ppm, the two extracts showed 90% inhibition on both shoot length and root length. Strong antifungal activity was also exhibited by the methanol fraction and crude extract against two fungal species namely *Aspergillus niger* and *Aspergillus tamarii*. The inhibitory and antifungal nature of the fruit pulp therefore may play a role by protecting the seeds until favourable condition are available for their germination.

Keywords: tamarind, allelopathy, antifungal

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