

Plant growth affected by tea seed powder

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Natural products marketed as plant growth enhancers are becoming increasingly sought-after. Many of these products, typically produced by small companies with limited research capabilities, have not been tested in farm trials, nor have claims about product effectiveness been documented by scientific data. Researchers from the University of Copenhagen investigated the growth regulatory effect of Tea Seed Powder (TSP), a saponin-rich waste product from tea seed (*Camellia* sp.) oil production. The results of research appeared in the *HortScience*.

Tea Seed Powder, an ingredient used in products from Nor-Natur (a Danish manufacturer of natural horticultural and agricultural products), is a granulated waste product from Asian tea oil production. The product contains dried seeds of the species *Camellia* sp., whose oil had been extracted. The substance contains high amounts of saponins, believed to be the biologically active fraction of the extract.

Marianne Andresen and Nina Cedergreen tested the growth-regulatory effects of TSP using a three-step approach. First, laboratory tests investigated growth effect on sterile *Lemna* (duckweed) plants. "In this test system, indirect effects of pests and diseases can be excluded as well as an effect of improved [nutrient uptake](#) because the plants are grown under non-limiting nutrient conditions", the authors explained. In the second phase, TSP was tested in greenhouse studies on pot-grown beet, mustard, oat, and barley using two different application methods. Finally, strawberry plants were used in a biennial experiment to investigate the effect on fruit development and [plant growth](#) in the season of tea seed application and during the next year of cultivation.

According to Andresen and Cedergreen, the results showed that extracts from TSP have a pronounced and direct physiological effect on plants, which can both increase growth and decrease growth depending on the applied dose. They noted that the growth stimulatory effects can be used to enhance crop yield and quality in agriculture and horticulture operations if applied at the correct dose and used with the documented fungicidal effect.

The scientists cautioned that further research on TSP is needed. "The growth-enhancing effect could be used commercially to improve crop yield; however, because TSP is also known to be very harmful to earthworms, possible environmental effects of the use of TSP in agriculture and horticulture must be considered before use." They added that many saponins have a bitter taste, suggesting that studies are needed to determine whether this bitterness is transferred to the fruit.

More information: The complete study and abstract are available on the ASHS HortScience electronic journal web site:

[hortsci.ashspublications.org/c ... /abstract/45/12/1848](http://hortsci.ashspublications.org/c.../abstract/45/12/1848)

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