

**EFFECT OF CAFFEINE AND EPIGALLOCATECHIN GALLATE (EGCG) ON  
MONACROPSORIUM AMBROSIUM, SYMBIOTE OF THE SHOT-HOLE BORER  
BEETLE OF TEA**

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Shot-hole borer (SHB) beetle *Xyleborus fornicatus*, of tea is an insect prevalent in tea plantations located in the Central Highlands of Sri Lanka. The symbiotic ambrosia fungus (*Monacrosporium ambrosium*) is essential for completion of the life cycle of SHB. Previous studies carried out in our laboratory have established caffeine, the major alkaloid found in tea, inhibited the growth of the symbiotic ambrosia fungus and also had an adverse effect on the beetle. However, SHB is able to infest tea stems that have a relatively high concentration of caffeine.

Caffeine is known to form stable complexes with polyphenols. Therefore, interaction between catechins, a group of naturally occurring polyphenols found in tea, and caffeine may be responsible for modulating the adverse effect of caffeine that is present in tea stems. EGCG is the major polyphenolic constituent found in tea flush. The objective of this study was to determine whether epigallocatechin gallate (EGCG), in the presence and absence of caffeine, has an effect on growth of the symbiotic ambrosia fungus.

EGCG used for the study was separated from green tea flush using High Speed Counter-Current chromatography. Experiments on ambrosia fungus were carried out on solid agar media. During our study growth of ambrosia fungus, fungal mycelia were observed to develop well in media containing EGCG but were inhibited in the presence of caffeine. A difference was observed when EGCG was added to the caffeine containing media. Our results indicate that EGCG probably has an effect on the availability of caffeine, which reduces its inhibitory effect towards the growth of *M. ambrosium* on solid agar media. Further studies, including effect of EGCG on sporulation and spore germination, are necessary to confirm these observations.

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