

Effects of Micronutrients on the Nutritional Status of Clonal Tea Replanted in Areas Where Old Tea Was Uprooted

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Abstract

Tea yields peak is 21-30 years after which yields decline. The declining productivity and moribuncy has been reported in many tea fields due to prolonged period of monoculture under tea, physicochemical and biological properties of soil deteriorate considerably causing diseases, pests, acidic soils among others which leads to uprooting of old tea bushes. Deficiency of micronutrients in some tea sections has been reported which has been corrected by foliar application. Though the deficiency could be corrected through foliar application, this mode of application has its shortcomings including leaf burn and the mobility of nutrients from the leaves to the roots is very slow. This study aimed at determining the effect of soil application and variation of micronutrients on the nutritional status of clonal tea replanted in old tea lands. Leaf and soil samples were collected in a random complete block design and the micromutrient levels determined using Inductively Coupled Plasma Emission (ICPE). Data analysis was done using MSTAT-C software. The changes in the levels of micronutrients with varied eight micronutrient combinations subjected on different clones were studied. Clone 12/28 significantly ($P \leq 0.05$) varied with the other clones indicating that different clones have varied abilities to absorb nutrients. Clone 303/577 gave a significantly higher uptake of B in the order TRFK303/577 > S15/10 > 12/28 > 31/8. Clone 12/28 recorded a higher uptake of N with mean levels of 3.075, clone 31/8 had significantly higher uptakes of Fe and Zn. None of the micronutrients subjected on the clones brought an impact in the uptake of N and Mg. This study therefore recommends the use of soil application of micronutrients as an alternative to foliar application in areas where old tea bushes were uprooted.

Keywords

Camellia sinensis; Clones; Micronutrients; Soil application; Foliar application

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