EFFECT OF MICRO NUTRIENTS ON THE QUALITY OF BLACK TEA

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Quality of black tea depends on many factors, including supply of balanced nutrients. However, present fertilizer recommendations of tea focus only on the macro-nutrients. Impact of micro-nutrients on qualitative and quantitative yield of many crops have been well established except for tea. Therefore, this study was initiated to generate baseline information on the effects of micro nutrients on the quality of black tea. Experimental trials were established in Rangala and Passara, representing two Agro Ecological Regions. In each location, seven treatments (Zn, Mn, B, Mn+B, Zn+B, Zn+Mn and Zn+Mn+B) together with a control (without any treatment) were tested in a Randomized Complete Block Design with two replicates. Fresh tender shoots were collected from each plot, before and after imposing treatments. They were subjected to orthodox manufacture, using a miniature manufacturing system. Black tea samples were then chemically analyzed for total polyphenols (TPP), total amino acids, antioxidant activity, theaflavins (TF) and thearubigins (TR). A significant $(p<0.05)$ increase in TR:TF ratio was observed with Zn treatment while, no significant $(p<0.05)$ differences were observed with respect to TPP, total amino acids or anti-oxidant activity for the treatments tested. However, total amino acids and anti-oxidant activity of black tea have slightly increased with Mn+B combination whereas it was *vise versa* with Zn and Zn+B combination in Passara. Similarly, a slight decrease in TPP and TR content was observed with the application of Zn+B+Mn combination at Rangala. On the basis of this baseline information, a long term study is recommended to further validate the effect of micro nutrients on the quality of black tea.

Keywords: Black tea, Micro nutrients, Tea quality