

施用碱渣对茶园土壤酸度和茶叶品质的影响

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Effect of Alkaline Slag Application on Acidity of Tea Garden Soils and Tea Quality

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摘要 开展田间小区试验研究了不同施用量条件下碱渣对酸化茶园土壤的酸度和茶叶品质的影响。结果表明,施用碱渣可以显著提高土壤pH、土壤交换性盐基和盐基饱和度,降低土壤交换性酸和交换性铝含量,并使土壤中钙、镁养分保持合理比例。施用碱渣提高了茶叶中茶多酚、儿茶素、咖啡碱、氨基酸和叶绿素含量,降低了茶叶中铅含量,使茶叶品质得到改善。碱渣施用量为4 500 kg·hm⁻²时,可将土壤pH值调节至5.51,达到最适合茶树生长的酸度条件,该条件下生产的茶叶品质也最佳,茶叶茶多酚、儿茶素、咖啡碱、氨基酸和叶绿素含量分别比对照提高22.5%、27.8%、34.9%、69.0%和52.1%,而Pb含量下降51.2%。

关键词: 酸化茶园土壤 碱渣 土壤改良 茶叶品质

Abstract: A field experiment was carried out to investigate effect of application of alkali slag on acidity of tea garden soils and tea quality. Results indicate that application of alkali slag increased soil pH, soil exchangeable base and base saturation; and decreased soil exchangeable acid and exchangeable Al, thus keeping Ca and Mg in the soil in a rational ratio. Application of alkali slag increased the contents of tea polyphenols, catechin, theine, amino acid and chlorophyll in the tea produced from the tea garden, decreased the content of Pb in the tea, thus improving tea quality. The application of 4 500 kg·hm⁻² alkali slag can adjust soil acidity to pH 5.51, the most favorable for tea plant growth and production of tea of highest quality, in which the contents of tea polyphenols, catechin, theine, amino acid and chlorophyll were 22.5%, 27.8%, 34.9%, 69.0% and 52.1%, respectively, higher than in the tea produced in CK, while the content of Pb was 51.2% lower.

Keywords: acidic tea garden soil alkali slag soil amelioration tea quality

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