

**Abstract**

Because of consumption of nitrogen, phosphorus and potassium fertilizers in form of solid application in tea gardens and high consumption of nitrogen fertilizer which, in addition to the cost of fertilizer, caused surface and subsurface water pollution. Less attention to micronutrients, especially zinc, copper, magnesium and the need for foliar spray of micro elements in improving the quality and quantity of leaves, reducing the use of chemical fertilizers and accelerate product handling due to rapid absorption. To evaluate the effect of foliar application of urea fertilizer with micronutrients on yield and quality of green tea leaf, an experiment based on randomized complete block design, with 10 treatments and four replications were conducted. Foliar micronutrients zinc sulphate and copper and magnesium, 10 days after each period of plucking, three times were applied. Ammonium sulfate - triple super phosphate and potassium sulfate fertilizers in the soil and in control plots was distributed. Leaf analysis was conducted from plucked green leaf samples for testing quality (tannin, caffeine and water extract) and organoleptic tests and amount of nutrient. The results showed that the effect of spraying was significant at the level of one percent on yield and quality characteristics of green tea leaves. The amount of nutrients in green tea leaves contain nitrogen, potassium, copper, zinc were significant in 1 percentage level and magnesium was significant at 5 percentage level, but phosphorus in leaves showed no significant effect.

**Key Words:** Tannin, Polyphenol, Caffeine, Water extract, quality of leaves



University of Zabol  
Graduate school  
Faculty of Agriculture  
Department of Agronomy and Plant Breeding

**The Thesis Submitted for the Degree of M. Sc (in the field of  
Agronomy Science)**

# **Effects of foliar application of urea with micro-nutrients on quality and quantity of leaf of green tea**

**Supervisors:**

Dr. M. Ramroodi  
Dr. G. R. Mohsenabadi

**Advisors:**

Dr. M. Galavi  
A. Shirinfekr

**By:**

A. Talebi

January 2016