
**ADDIS ABABA UNIVERSTIY**

**COLLEGE NATURAL AND COMPUTATIONAL SCIENCE**

**CENTER FOR FOOD SCIENCE AND NUTRITION**

# Influence of Nitrogen Fertilizer Rates and Varieties on Grain yield, Grain Nutrition and Injera Sensory Quality of Tef [Eragrostis tef (Zucc.)Trotter] varieties

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## Abstracts

*Tef [Eragrostis tef (Zucc.) Trotter] is one of major staple crops grown in Ethiopia. Studies have showed that tef has good nutritional composition. Excess applications of N fertilizer can affect the sensory properties of foods. Therefore, afield experiment was conducted to assess the effects of N fertilizer rates on grain nutrition and sensory quality of injera of three tef varieties at Debre Zeit Agricultural Research Center in 2017 main cropping season. Three tef varieties (Kora, Boset and Asgori) and five N rates (0, 30, 60, 90 and 120 kg N $ha^{-1}$) were used in Randomize Completed Block Design with three replications, while Triple Super Phosphate was applied at the same dose for all treatments. Phenological and yield component parameters were determined and significant $P<0.05$ by N rates and varieties. Grain nutrition, mineral content (Fe, Ca and P) and ant-nutritional factors were determined using standard methods. Sensory quality of injera and color were determined using panelists and injera eye software, respectively. N rates had almost negligible effects on grain nutrition except protein which was increased with N rate, while carbohydrate deceased significantly at $P<0.05$. Varieties with N rate did not show increasing or decreasing trends in mineral content. From means of varieties, Boset (30.14) and Asgori (30.18) had higher Fe content, but Kora (68.22) and Boset (65.93) had maximum Ca content in mg 100 $g^{-1}$. Results using panelists did not show much significant on sensory quality of injera. Kora at the control plot (K0) had better color, flavor, texture and taste values of injera, but slightly decreased with N rates, while Boset and Asgori did not show significant differences. Grand means of varieties and N rates did not have significant difference on color, flavor, texture and taste of injera and rated from neither like nor dislike–like very much, but Asgori had*

*different color and taste. Injera eye software indicated that, interactions of varieties with N rate did not show increasing or decreasing trends on L* values of injera. But the color of injera was significantly affected by varieties differences. From grand means of varieties, Kora had higher (55.74) L* value followed by Boset (54.71), but Asgori (51.26) had lower L*value, had lower injera quality. Injera from Asgori variety had maximum red color but the same effect for Kora and Boset. Kora and Boset had higher yellow color at control plot, but for Asgori it increased with N rate.*

***Key words: Tef varieties, fertilizer, Injera, sensory quality and color –CIEL*ab value***