



Turkish Journal of Agriculture and Forestry

Turkish Journal
of
Agriculture and Forestry

Determination of the Effects of Hazelnut Husk and Tea Waste Treatments on Urease Enzyme Activity and Its Kinetics in Soil

Rıdvan KIZILKAYA, İmanverdi EKBERLİ
Ondokuz Mayıs University, Faculty of Agriculture, Department of Soil Science, 55139
Samsun - TURKEY

 [Keywords](#)
 [Authors](#)



agric@tubitak.gov.tr

[Scientific Journals Home Page](#)

Abstract: In this research, the effects of 5% treatment of hazelnut husk (HH) and tea production waste (TEW) to clay loam soil on urease enzyme activity and its kinetics were determined in a 30-day soil incubation experiment. For this purpose, kinetic parameters (V_{max} , K_m , and V_{max}/K_m) were calculated by determining urease activity in organic wastes treated soils in different substrate concentrations (0%, 1%, 2%, 4%, 6%, 8%, 10%, and 12%), incubation periods (0, 1, 2, 3, 4, 5 and 6 h), and incubation temperatures (0, 10, 20, 30, 40, and 50 °C) at the end of the 30 days of the incubation. The results of the study showed that: a) Treatments of soil with hazelnut husk and tea waste increased urease activity in soil, b) the reaction velocity increased as substrate concentration increased, however this increase continued up to 8% substrate concentration level in control soil and 10% substrate concentration level in organic waste amendment soil, c) While the reaction velocity of control soil became constant at 10% substrate concentration level, it became constant at 12% substrate concentration level in organic waste amendment soil. In both control and soil treated with organic wastes, the highest reaction velocity in substrate concentrations was determined at the incubation temperature of 50 °C. The highest V_{max} in control and soil treated with organic wastes (TEW and HH) was observed at 50 °C. The highest K_m was observed at 40 °C in control and at 50 °C in TEW and HH treatments. The highest V_{max}/K_m was observed at 50 °C in control, at 30 °C in HH treatment, and at 40 °C in TEW treatment soils.

Key Words: Organic waste, hazelnut husk, tea waste, urease, soil, kinetic parameters

Turk. J. Agric. For., **32**, (2008), 299-310.

Full text: [pdf](#)

Other articles published in the same issue: [Turk. J. Agric. For., vol.32, iss.4.](#)