

SUMMARY

Boron is naturally occurring element that has been recognized as an essential element for plants. It is one of the seven essential micronutrients (Fe, Zn, Mn, Cu, B, Mo, Cl), or trace elements and is, therefore, extremely important in the production of commercial crop plants. There is a minor difference between deficiency and toxicity boron levels. Therefore, establishing of the status of boron in plant and plant-available boron in soil is of high interest for predicting deficiencies as well as toxicities in a wide selection of crops worldwide. It is known that there is an environmental problem from boron-rich thermal water mixing with irrigation water.

In this work, the amount of boron and fractions of boron were determined on 10 hot water, 3 cold water and 11 soil samples in Aydın region. On soil samples; first, the amount of boron was determined as water soluble fraction separately, and then sequential extraction methods were applied to the same samples. The boron fractions of sequential extraction methods were defined as follows: *exchangeable, bound to carbonates, bound to Fe-Mn Oxides, bound to organic matter and residual*.

During the studies on both water and soil samples, amount of boron was determined by UV-spectrophotometric azomethine-H method. On determination by azomethine-H method; optimum conditions such as pH, time, wavelength and concentration interval were determined.

The study revealed that high boron contents were determined on samples especially on thermal waters. Although thermal waters have high boron contents, their value decreased with dilution by irrigation water to acceptable ratios. Also, on soil samples, a decrease in the amount of boron was observed in soils far away from the thermal source.