The Investigation of the Effects of Excess Boron on the Root Growth of Arabidopsis thaliana and Schrenkiella parvula

Winchester, Katherine (School: St. Joseph's Academy)

The purpose of this experiment was to determine the effect of boron toxicity on the root growth of Schrenkiella parvula and Arabidopsis thaliana. According to previously published work, an excess of boron in the media on which the plants are grown will cause their roots to grow shorter, but if calcium is added, it can help the plant overcome the stress caused by the excess boron. The researchers germinated the plants on germination plates, which did not have any extra boron or calcium added to their media. After five days on these plates, the plants were moved to their treatment plates. Some plants were allocated to a boron trial, which had three control plates, three plates with 5 mM of boron, three plates with 10 mM of boron and three plates with 15 mM. Other plants were allocated to a calcium and boron trial, which had three control plates, three 5 mM boron plates, three 10 mM calcium plates, and three plates with 5 mM of boron and 10 mM of calcium. Each plate had five A. thaliana plants and five S. parvula plants. The experiment found that an excess boron concentration did not have a significant impact on S. parvula, but it did on A. thaliana. The second trial also found that calcium did not have a significant impact on the boron stress of either species.