

Effectiveness of Compost Application on Growing Spoon Cabbage (*Brassica rapa*) in Salt Treated Soil

Pennely M. Lakjohn

Mentor: Vincent Enriquez, MA, USDA-NIFA Funded Cooperative Research and Extension Program, College of the Marshall Islands

Coordinating Center: University of Hawai'i at Manoa

ABSTRACT:

Vegetable farming in the Marshall Islands faces many challenges due to limited amounts of nutrients available in the soil. Salt stress is another major problem in most atolls that are regularly experiencing inundation and salt spray. Spoon cabbage (*Brassica napa*) is one of the most popular green leafy vegetables on the island, a common ingredient in soups and stir-fried vegetables.

Composting is a sustainable way of utilizing organic materials available on the island. In this experiment, the effectiveness of using compost in alleviating the effect of salt stress in the growth performance of spoon cabbage was explored. It was hypothesized that compost application on soil would result in a higher salt tolerance threshold level.

The compost used was a mixture of coconut husk, seaweeds, and dry leaves of breadfruit and banana. Both soils (compost mix and topsoil) were potted in 1-gallon polybags and the plants were allowed to grow for 21 days with fertilization. They were exposed to different concentrations (0, 15, 30, 60, 120 and 240 mM) of salt stress by daily irrigation for 14 days. Growth performance was compared to the control group. Treatments were distributed in 3 replicates using Randomized Complete Block Design (RCBD). All data gathered was analyzed using Analysis of Variance (ANOVA) and treatment means were evaluated using Duncan's Multiple Range Test (DMRT) at 5% level of significance. The result of this study could also be applied to other plants and be useful in climate change adaptation.

Key words: Compost, salt stress, organic materials, climate change adaptation