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Sodium Chloride Affects Growth in Taro

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ABSTRACT

Salt-water intrusion due to rising sea levels may negatively affect wetland taro [*Colocasia esculenta* (L.) Schott] production in low-lying Pacific islands. Measurements of water electrical conductivity (EC) values in taro producing wetlands on Aunu'u Island, American Samoa, ranged from 0.34 – 6.60 mS/cm.

In the lab, the growth of taro [*Colocasia esculenta* (L.) Schott, cv. Samoa 2] at different concentrations of sodium chloride (NaCl) was evaluated in a hydroponic system. Taro was grown at seven NaCl concentrations: 0, 2.5, 5, 10, 20, 40, and 80 mM, representing EC values of 0.34, 0.63, 0.95, 1.53, 2.71, 4.82, 8.99 mS/cm, respectively. Fresh weight of planting material was weighed before and after harvest at 40 days.

The NaCl tolerance threshold (maximum NaCl concentration without significant effect on growth when compared to a control) for taro variety Samoa 2 was found to be at x mM NaCl solution, equivalent to an EC value of x mS/cm. Some areas in the Aunu'u wetland that were once utilized for taro production now have salinity levels that are too high for growing taro. There is a need to investigate the cause of this rise in salinity and to identify salt tolerant taro varieties.

Key Words: Electrical Conductivity, [*Colocasia esculenta* (L.) Schott, cv. Samoa 2], Hydroponic System

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