

Effects of Locally Available Natural Substances on Some Plant Seeds Germination

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Successful seed germination is a crucial step in the life cycle of a plant. While seed priming has been carried out using both natural and synthetic chemical substances, natural substances are considered to have fewer negative environmental impacts and are cost effective. Therefore, the present study focused on the effects of natural substances such as red rice (T1) and white rice washed water (T2), orange coconut (T3), green coconut (T4) and mature coconut water (T5) on seed germination of black gram, pumpkin, rice and maize. 25 healthy sterilized seeds (85% germination rate) of the above plants were pre-soaked in 30 ml of natural suspension for 24 hours separately at room temperature and repeated twice. Then seeds were transferred to the sterilized petri dish with moistened filter paper and mean values of length of germ tube was measured. Data were subjected to analysis of one-way analysis of variance (ANOVA) followed by Tukey test. Except for pumpkin and maize seeds treated with T1 and T2, there were no effects of natural substances on germination rate of the tested seeds. But more interestingly after 48 hours, germ tube formation of most tested seeds were highly accelerated by T1 and T2, excepts black gram treated with T2. Hence, T3, T4 and T5 showed inhibitory effect in most tested seeds except maize at 48 hours. On the other hand, among the selected natural substances T1 and T2 revealed better effects on seed germination and hence, could be used as an environmentally friendly method to stimulate the seed germination.

Keywords: Germination rate, rice water, coconut water