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Antifungal Nature of Bacillus Subtilis in Controlling Post Harvest Fungal Rot of Yam

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Abstract : This study investigated the antifungal activity of Bacilluss subtilis in the control of postharvest fungal rot of white yam (Dioscorea spp). Bacillus subtilis was isolated from the soil and fungi (Aspergillus spp, Mucor and yeasts) were isolated from rotten yam. The organisms were paired in yam nutrient agar (YNA) and yam Sabourraud dextrose agar media. In the yam dextrose agar media (YSDA) plates, the Bacillus grew rapidly and established itself and restricted the growth of the fungi organisms, but there was no zone of inhibition. This behaviour of Bacillus on the plates of YSDA was also observed in the yams where the fungi caused rot but the rot was suppressed by the presence of the Bacillus as compared to the degree of rot observed in the control that had only spoilage fungi. The control yam showed greater rot than other yams that contained a combination of Bacillus and fungi. The t-Test analysis showed that the difference in the rot between the treated samples and the control sample is significant and this implies that the presence of Bacillus significantly reduced the growth of fungi in the samples (yams). It was revealed from this study that Bacillus subtilis treatment can be successfully used to preserve white yams in storage. Its fast growth and early establishment in the sample accounts for its antifungal strength.

Keywords : Bacillus subtilis, rot, fungi, yam
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