

Title: Bioformulation of bacillus amyloliquefaciens MKB04 as an- tagonistic microbe

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Bioformulations are biologically active products containing one or more beneficial microbial strains; it is easy to use as economical carrier materials. Recently, there is a change in attitude towards chemical-based fertilizer and pesticides due to the emerging hazards of environmental pollution and pesticide residual effects on human health and the earth ecosystem. This study was conducted to demonstrate the use of biological agent to reduce the effect of the hazards concern. *Xanthomonas vesicatoria* the causal agent of tomato fruit spot was dually cultured in vitro on NA medium with *B. amyloliquefaciens* MKB04 which showed highly antagonistic activity with large inhibition of growth (87.73%). Bacterial suspension and wheat flour were mixed under sterile conditions, then calcium carbonate (CaCO₃) was added for moisture and pH adjustment. The granules were air dried to reduce the moisture content, then packed and sealed in polypropylene bags.

The granular bio formulation was tested for its viability by storing under different temperature, 4°C and 25°C. *B. amyloliquefaciens* MKB04 wheat flour granular bio formulated indicated its shelf life stability up to 3 months storage at 4°C and 25°C with adequate population. Viability of *B. amyloliquefaciens* MKB04 in wheat flour based formulation showed stability for up to 94 days with 108cfu/g after storage at 4°C and 25°C. Density cfu/g in the formulation had declined to 107cfu/g. This promising stored granular bioformulations of *B. amyloliquefaciens* MKB04 might be considered as safe, cheap and easily applied biocontrol method against such pathogens taken in consideration avoidance of environmental hazards. Overall, *Bacillus amyloliquefaciens* MKB04 play an important role in agriculture, research involving *B. amyloliquefaciens* and its uses could be expanded greatly in future, leading to new treatment and prevention of plant diseases.

Biography

Fatima Osman has her interest in Microbiology; mainly agricultural Microbiology. Her research focused on using of antagonistic and environmental-friendly microorganisms as biological control agents. She had awarded B.Sc. (Honours, Class one) in Microbiology (2017) in College of Applied & Industrial Sciences, University of Bahri, Khartoum-Sudan. In October,2017-November,2018 she attended training on Bacteriology, Mycology, Parasitology, Virology and Molecular Biology practical in Animal Resources Research Corporation, Central Veterinary Research Laboratory (CVRL), Khartoum-Sudan. Also in December, 2017, she appointed a Teaching Assistant in Department of Microbiology, College of Applied & Industrial Sciences, University of Bahri, Khartoum-Sudan. Additionally, she became a member in Organization for Women in Science for the Developing World (OWSD), Trieste-Italy, in February, 2019. In 2021 she started her master study at Al-Neelain University, Faculty of Science and Technology, Department of Molecular Microbiology, Khartoum- Sudan. Lastly, she became a member in American Society for Microbiology (ASM), Washington-USA, in August, 2022.