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BOOK OF ABSTRACTS

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Plant Growth Promoting and, Nitrifying Properties of *Bacillus strains* isolated from ~~of~~ Tilapia (*Oreochromis niloticus*) farm environment in Ivory Coast for aquaponic application

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Abstract

Food security depends heavily on agriculture and aquaculture, both increasingly affected by climate changes through drought, soil degradation, and water pollution. Aquaponics offers a sustainable option for combined plant and fish production, and the use of microorganisms such as *Bacillus* represents an ecological innovation to enhance the system productivity. The aim of this study was to investigate *Bacillus isolates* named Bc1 to Bc12 from of Tilapia (*Oreochromis niloticus*) farm environment for plant growth promoting and nitrifying properties. All strains tested showed indole-3-acetic acid production and potassium & phosphorus solubilization abilities. Investigating plant growth promoting properties showed that Bc 12 was the only *Bacillus producing* siderophore. Bc12 allowed the increase of maize seeds germination rate 16.67 % and radicle length 3.06 mm. Among six (6) *Bacillus strains* tested on nitrifying capacity, Bc2, Bc5 and Bc12 showed the best properties and then selected. *Bacillus strain* Bc12 was identified as *Bacillus licheniformis* by MALDI-TOF method with a score of 2.03. Globally, Bc12 exhibited both plant growth promoting and nitrifying characteristic potentials and can be a suitable candidate for further in vivo trials and One Health applications in aquaponic systems.

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