World Academy of Science, Engineering and Technology
International Journal of Agricultural and Biosystems Engineering
Vol:9, No:07, 2015

Nitrogen Fixation, Cytokinin and Exopolysachharide Production by indigenous Azotobacter spp. from East Nusa Tenggara

Authors : Reginawanti Hindersah, Widiya Septiani Perdanawati, Dewi Azizah Sulaksana, Hidiyah Ayu Ma'rufah

Abstract : Maize in some region in East Nusa Tenggara Indonesia bordering Republic Democratic of Timor Leste is important local food crop and commonly cultivated using conventional method without appropriate plant nutrition system so that productivity is still low. A way to enhance local corn yield is adding biofertilizer containing nitrogen (N2) fixing bacteria such as Azotobacter. The purpose of this research was to determine N2 fixation, cytokinin as well as exopolysachharide production capacity of six indigenous Azotobacter strains in pure culture. The N2 fixation capacities of native 3 day old Azotobacter strains added to Ashby Media varied from 0.01 to 0.39 µM/g/hour. Cytokinin production of these strain in liquid culture of N-free Media was 0.11 to 40.04 ppm while exopolysachharide content in liquid culture of Vermani Media varied from 0.4 to 27.3 g/L. This results demonstrate that some local Azotobacter strains might be used as biofertilizer.

Keywords : azotobacter, local isolate, N fixation, phythohormone, exopolysaccaride
Conference Title : ICOAFS 2015 : International Conference on Organic Agriculture and Food Security
Conference Location : Prague, Czechia
Conference Dates : July 09-10, 2015