Influence of Cross-Inoculation on Groundnut and Bambara Groundnut-*Rhizobium* Symbiosis: Contribution to Plant Growth and Yield in the Field at Sarh (Chad) and Ngaoundere (Cameroon)

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Abstract (300 word limit)

In the context of sustainable research aiming at improving seed yield and maintaining soil fertility, a study on cross-inoculation of groundnut (Arachis hypogaea L.) and Bambara groundnut (Vigna subterranea (L.) Verd.) with rhizobia strains from four crop legumes was carried out at Sarh (Chad) and Ngaoundere (Cameroon). The experiment was conducted in each site following a randomized complete block design with 6 treatments known as the con- trol, and 5 cross-inoculation formulations (RA, RN, RS, RV and MR), each of which was replicated thrice. Results obtained show that cross-inoculation contributed to the improvement of growth (plant sizes and biomasses) of the two crop legumes, as well as their seed yield at harvest. The enhanced yield expressed in kg/ha varied from 9.83% to 63.73% for groundnut and 72.71% for Bambara groundnut. These findings suggest that groundnut and Bambara groundnut do have a symbiotic affinity with rhizobia from other crop legumes. Whereas Groundnut, Cowpea, Soybean, Bambara groundnut rhizobia (GR, CR, SR, BR) alone, and the fourth in a mixture (RM) could be used to help improving groundnut seed yields; this mixture would not be indicated for in- tensive cultivation of Bambara groundnut later.

Keywords: Bambara Groundnut, Groundnut, Growth, Rhizobia, Cross-Inoculation, Yield, Chad, Cameroon



Image

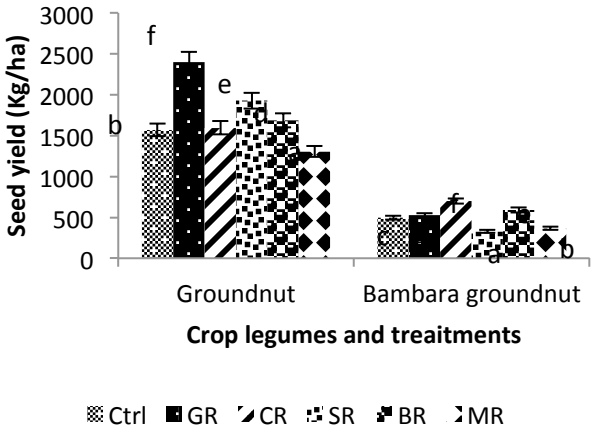


Fig. 1. Variation of seed yield of groundnut and Bambara groundnut (kg/ha) at Ngaoundere-Cameroon.

Recent Publications (minimum 5)

1. Gandebe M., Ngakou A., Ndjouenkeu R., 2017. Changes in Some Nutritional and Mineral Components of Nerica Rice Varieties as Affected by Field Application with Mycorrhiza and Chemical Fertilizer in Northern Cameroon. Food and Nutrition Sciences, 2017, 8, 823-839.

2. Gandebe M., Ngakou A., Ndjouenkeu R., 2017. 2017. Agronomic Adaptability of Some Selected Nerica Rice Varieties in Response to Biofertilizer Application in Northern Cameroon. *Journal of Experimental Agriculture International,* 15(5): 1-12.

3. Goloum Gomoung, Mbaiguinam Mbailao, Steve Takoukam Toukam, Albert Ngakou, 2017. Influence of Cross-Inoculation on Groundnut and Bambara Groundnut-*Rhizobium* Symbiosis: Contribution to Plant Growth and Yield in the Field at Sarh (Chad) and Ngaoundere (Cameroon). *American Journal of Plant Sciences*, 8:1953-1966.

4. Issa M,, Ngakou A., Haouvang C.L., Nukenine E.N., 2017. Potentials of Arbuscular Mycorrhiza Fungi (AMF) and Neem (*Azadirachta indica* A. Juss.) Leaves Extract as Biological Control Agents against the Sweet Potato Weevil (*Cylas puncticollis* Boh.) in Two Agro-ecological Zones of Cameroon. *Journal of Experimental Agriculture International,* (1): 1-13.

5. Wadoufey A., Dayang P., Ngakou A., 2016. Monitoring an Experimental Field through Web Mapping Technology *International Journal of Computer (IJC),* 22(1): 20-28.

Biography (150 word limit)

Pro. Dr. Albert Ngakou has his expertise in evaluation and passion in developing strategies to improve agricultural production using biofertilizers, organic fertilizers, agricultural practices such as soil solazization, as well as soil Revitallization (ReviTec) approach to combat desertification, deforestation, and restoration of soil fertility on degraded lands. Hence, microbial inoculants, compost, compost tea, plant extract have been developed to control crop pests and improve crop yields. He has been coordinating a master of Ecology between the university of Ngaoundere in Cameroon andt the University of Bremen in Germany within the subject-related partnership. His expertise in his research sustainability has enable him to offer courses to master students at the University of Bremen in and the University of Ismaila in Egypt.

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Notes/Comments: