<table>
<thead>
<tr>
<th>Title</th>
<th>Increasing Soybeans and Climbing Beans Production in Smallholders’ Farms in Eastern Kenya</th>
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| Purpose | To carry out research on improvement of yields of soybeans and climbing beans in two Counties of Eastern Kenya |
| Project Summary | Fixation of nitrogen by legumes can play a key role in agricultural sustainability. Since most smallholder farmers in Eastern Kenya cannot afford inorganic nitrogen fertilizers, the identification of effective indigenous rhizobial strains which nodulate soybeans and climbing beans would be important. Legume inoculation with rhizobia has been used worldwide for a century when effective rhizobia are absent or in insufficient numbers in soil. One of the major agronomic problems of applying superior strains of rhizobia as inoculants is that indigenous soil populations of rhizobia are often more competitive than the inoculant strains. Many soils contain high numbers of indigenous rhizobia which are often poor in...
nitrogen fixation ability but highly competitive as they are well adapted to local conditions. The competitive ability of an inoculant strain is therefore a major factor in determining the success of rhizobia inoculation. Therefore, to achieve maximum biological nitrogen fixation from soybeans and climbing beans it is necessary to characterize and identify effective rhizobia before they are made available for field application. In this study laboratory, greenhouse and field experiments will be carried out to assess indigenous rhizobial effectiveness in nitrogen fixation. The phenotypic and genetic diversity of the rhizobia will be carried out with the aim of identifying potential isolates for use in preparation of inocula for soybeans and climbing beans in Embu and Tharaka Nithi Counties in Eastern Kenya.

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<tr>
<th>Country and Specific Locations</th>
<th>Embu and Tharaka Nithi Counties in Kenya</th>
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<tbody>
<tr>
<td>Participating Institutions</td>
<td>Kenyatta University and South Eastern Kenya University</td>
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<tr>
<td>Start Date</td>
<td>1st November 2014</td>
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<td>End Date</td>
<td>31st October 2016</td>
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<tr>
<td>Amount of Funding</td>
<td>USD 64,993</td>
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Dr. John Maingi Muthini

Dr. John Maingi is an alumni of Kenyatta University with training in Microbiology. He is currently a lecturer in the Department of Microbiology, School of Pure and Applied Sciences, Kenyatta University, where he teaches Agricultural Microbiology, Bacteriology, Environmental Microbiology and Genera Microbiology. He has successfully supervised 18 Master of Science students and currently he is supervising Seven Master of Science (Microbiology) students and three (3) PhDs. Dr. Maingi’s main areas of research interest are biological nitrogen fixation (BNF), bio-fertilizers and bio-pesticides, plant-microbe interactions and molecular characterization of microbes.

Selected Publications


Research Grants