MODULE 5: DEMONSTRATION 2

QUALITY CONTROL IN INOCULANT PRODUCTION: FERMENTOR BROTH

PURPOSE

- To demonstrate the procedures required to assure purity of culture during production of inoculum in fermentors.

CONCEPTS OF DEMONSTRATION

Rhizobia must show the proper reactions when streaked on test media (**Module 3**, Demonstration 2).

Odor, color and pH can also be indicators of purity.

A pure rhizobia culture must be gram negative.

A pure culture of rhizobia must agglutinate with an antiserum produced against it.

RECOMMENDATIONS FOR FARMERS FROM RESULTS OF THIS DEMONSTRATION

Knowledge of quality control in inoculant is not useful to farmers. It is useful to extension agents for a better understanding of how inoculant is produced and how the quality of inoculant is verified.

CONDUCTING THE DEMONSTRATION

Material Requirements:

fully assembled and operational glass fermentor
10 ml plastic syringe with 23 g needle
test tube rack with three 10 ml test tubes
antiserum for strain used in fermentor
bottle with saline solution (0.85% NaCl)
1 ml pipette
tube of preagglutinated culture
set of gram stain solutions
microscope slides
cover slips
prepared gram stain of TAL 102

preadjusted microscope

solution of bromthymol blue (BTB)

yeast mannitol agar (YMA) plate containing bromthymol blue with pure culture of *Bradyrhizobium* TAL 102 growing on it

YMA plate containing congo red (CR) with pure culture of *Bradyrhizobium* TAL 102 growing on it.

A microbiologist familiar with rhizobia is required to conduct this demonstration. The instructor will perform quality control methods while narrating his demonstrations which will consist of the following activities:

1) Show the YMA plates containing CR and BTB and point out that the culture of TAL 102 had been streaked onto these media as a purity test prior to use for mass culturing.
2) Draw fermentor culture broth aseptically and place into a test tube. Explain color and smell.
3) Take one ml of culture into another test tube for pH test.
4) Put 1 ml and add antiserum and saline for agglutination test. Sow preagglutinated culture in the last tube.
5) Make a smear on a microscope slide. Under the microscope, show the slide prestained with gram stain.