STUDIES ON THE ROOT NODULE FORMATION BY COMMERCIALLY AVAILABLE RHIZOBIUM STRAINS AND HOST PARASITE INTERACTION IN COW PEA, (*Vigna unguiculata*) L.Walp EXPERIMENTALLY INFECTED WITH BLACK PEAD APHIDS

Farmers use traditional knowledge in their cultivational practices that will not harm the environment but the yield will be less. Green revolution had multiplied the crop production but the use of fertilizers to meet the needs of the marketed seeds have lead to obligation on the farmers to continue the use of chemical fertlisers. The cow peas is used as a intercrop in the field across the world due to its ability to fix nitrogen with the help of symbiotic bacteria rhizobium. But this association is dependent on the health of the plant. The cow pea plant infected by black pea aphids showed poor growth and decreased root nodulation. The control plants showed that within 30 days four root nodules can be formed . But the number of root nodules formed decreased based on the duration and onset of black pea aphid infestation. To control pest farmers generally use pesticides. Four commonly used pesticides, flubendiamide, tag folder, lamdab cyhalothrin and Oberon were used to study the effect of pesticides on rhizobium. There was a clear reduction in the number of colony forming bacteria in the plants treated with pesticides. Among the four pesticides used lambda cyhalothrin (yellow) used showed the minimum number of colony forming rhizobial count of 14 while the control had 632 colony forming units, while tag folder had 67, flubendiamide had 113 and Oberon had 122 colony forming units.. This shows that a drastic reduction in the number of soil rhizobia might occur due to repeated application of pesticides which is magnified by the fact that most of the chemical pesticides are non biodegradable. Biological control of the pest and use of biodegradable pesticides has to be advised to overcome this situation.