

2.1.1 Kayeka Juma M. (1996). The partitioning of photosynthates to nodules and nitrogen fixation in bean (*Phaseolus vulgaris* L.) (Supervisors: Dr. D. M. N. Mbewe and Mr. R. C. Nyemba).



This study was designed to determine the influence of the maturity status on partitioning of photosynthates to the roots and nitrogen fixation in common beans (*Phaseolus vulgaris* L.). Two experiments (glasshouse at the University of Zambia and field at the Zambia Seed Company farm, Ngwerere, north of Lusaka) were conducted using a split-plot design in both cases. Three nitrogen treatments, i.e., N-fertilized (80 kg N/ha), inoculated with *Rhizobium* CIAT 899 (1 ml of inoculum per plant in glasshouse and 2 ml per hill in the field) and non-inoculated were the main plots. Six cultivars of beans each, two representing a maturing group; early (Chizi and Contender), medium (Kablengeti and CG 76-1) and late maturing (PVA 2280 and Carioca) were the subplots. Parameters measured were nodule number per plant, nodule dry weight per plant, carbohydrate content in roots and shoot nitrogen content. The data were collected at three growth stages, i.e., 50% flowering, pod initiation and mid-pod fill. It was found that the maturity status of bean cultivar had no influence on the partitioning photosynthates to the roots; amount of nitrogen in shoots was positively correlated with carbohydrate content in the roots. This confirms that the supply of photosynthates is very important in the roots.

