

**THE EFFECTS OF PARAQUAT ON THE POPULATION OF
Rhizobium sp.**

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ABSTRACT

THE EFFECTS OF PARAQUAT ON POPULATION OF *Rhizobium* sp.

Paraquat is an active ingredient in the herbicides that is used by farmers to kill broad-leaved weeds and perennial weeds. However the long term application and overused of paraquat has affected the non-targeted organisms which reside in the soils. This in turn may affect the soil biota, their activities and the whole ecosystem. This research was conducted in vitro to examine the effects of paraquat on the symbiotic nitrogen fixing bacteria, *Rhizobium* sp. Strain of *Rhizobium phaseoli* that was isolated from common bean plant root nodules. Different concentrations of paraquat had been applied and the inhibition zone was examined using paper disks diffusion technique. The results showed that the growth of *R. phaseoli* was inhibited even at low concentration of paraquat. Higher concentration of paraquat caused higher inhibition effect on *R. phaseoli*. These findings were important due to the widely used of paraquat in farming activity and the importance of *Rhizobium* sp. in providing nitrogen source to the host plants. Several recommendations have been suggested to manage the weeds and at the same time the effects on soil biota can be minimized.