

## Isolation and Characterization of *Rhizobium* Species from Root Nodules of *Arachis hypogaea* L. Peanut

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*Rhizobium* is a gram-negative bacterium which possesses the ability to establish a symbiotic relationship with leguminous plants. The objective of the study was to isolate and identify *Rhizobium* species from root nodules of peanuts (*Arachis hypogaea* L.) to explore their environmental friendly contributions to soil fertilization. A total of 20 nodulated healthy peanut plants of different varieties were collected from different areas in Sri Lanka during January to March, 2018. The bacterium was isolated from peanut root nodules and subjected to morphological characterization by using the Gram staining. Further identification was carried out by using biochemical tests including starch hydrolysis test, Voges proskauer test, oxidase, catalase and tryptophan test. Antibiotic sensitivity of the bacterium was analyzed against Erythromycin, Ampicillin, Chloramphenicol and Kannamycin by using turbidity measurement. Results revealed ten isolates of *Rhizobium* species through the standard microbiological and biochemical techniques. The biochemical tests including oxidase, catalase, starch hydrolysis and Voges Proskauer were positive; Tryptophan was negative to the isolated strains which confirmed that the strain isolated from peanut belongs to *Rhizobium* species. Therefore, these properties suggest that the *Rhizobium* isolated would have potential application, if developed further to be a commercial product as a bioagent.

**Keywords:** Isolation, peanut, *Rhizobium*, Root nodule, Antibiotic