

**Legume-*Rhizobium* symbiosis in the shorelines of Newfoundland:
nitrogen fixation activity in beach pea root nodules**
(Poster)

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Lathyrus maritimus (L.) Bigel, commonly known as beach pea, grows along the shorelines of arctic and subarctic regions from Greenland to Siberia and Japan. In Canada it is found in Newfoundland, Nova Scotia and Quebec. The roots of the plants are found to be nodulated by the nitrogen-fixing bacterium *Rhizobium* under naturally growing conditions. In Newfoundland this plant occurs on sandy and gravel beaches. Besides being a sandbinder due to the horizontally growing underground stems and roots, it is often used as fodder for grazing cattle. In this paper a study of beach pea nodules and its nitrogen-fixing activity are presented. Maximum values for nitrogen fixation, measured by the acetylene reduction assay, were obtained at 20°C, and the Q_{10} between 5 to 20°C

was found to be ~2. The nodule anatomy revealed its indeterminate perennial form. Oleosomes (lipid bodies) were present in the nodule tissues. Morphometric analysis showed their presence in the cortical cells throughout all developmental stages, but the infected cells were marked by temporal presence only during the early stages of infection and symbiosis. The rhizobia were isolated, cultured and characterized in the laboratory. The plants could be grown under laboratory conditions and infected effectively with the isolated rhizobia. Beach pea and its symbiotic rhizobia offer a system, the study of which will provide insights into the nature of our shorelines.