## Theme 3: Biodiversity – Terrestrial, Aquatic

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# DIVERSITY OF *BACILLUS* STRAINS IN THE WETLANDS AROUND KUMARAKOM REGION OF VEMBANADU LAKE

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Microbial diversity of unexplored geographical locations assumes significance considering the various physiological and metabolic capabilities of microorganisms, especially bacteria. Many of them may possess the ability to solve new and emerging disease problems and to advance biotechnology. *Bacillus* species constitute a diverse group of bacteria widely distributed in soil and the aquatic environment. In this study, *Bacillus* strains isolated from the wetland were characterized by detailed conventional biochemical methods as described in Bergey's Manual of Determinative Bacteriology. Analysis of the data revealed that *B. pumilus* was the most predominant species in the region under study (17%) followed by *B. subtilis ssp. subtilis* (11%). The isolates show differences in certain characteristics such as, shape of the spore, position of the spore and swelling of the sporangium. About 95% and 91% of the total isolates could grow in media with salt concentrations of 5% and 7% respectively. *B. cascainensis*, *B. coagulans*, *B. megaterium*, *B. pumilus*, *B. sterothermophilus* and *B. subtilis* were able to survive at temperatures up to 55$^{o}$C and at 10% of salt concentration. About 78% of the isolates exhibited protease and DNase activity. Tween 80 and starch were hydrolyzed efficiently. About 8% of isolates were capable of elaborating tyrosinase. Carbohydrate fermentation ability of *Bacillus* isolates revealed that glucose is the most preferred carbon source.