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- Abstract** : The Bacillus genus represents a heterogenous group encompassing to date eighty-three validly described species . The environmental and nonpathogenic species of this genus exhibit a wide range of morphology , physiology , nutritional requirements, biochemical characteristics and DNA base composition. Since this genus plays a great role in the ecosystem development , it needs additional taxonomical studies to clarify its heterogeneity. In addition, this genus represents one of the most interesting groups of bacteria to carry out these studies. Therefore eleven newly isolated pigmented specimens were compared to determine their differential characteristics and taxonomic position. The isolates were taken from a salty environment. They were all Gram positive, rod shaped , spore – formers , mesophilic , neutralophilic and slightly halophilic . The isolates were compared with respect to their morphological , physiological , nutritional requirements and biochemical characteristics. Accordingly, they were classified into groups and subgroups. By using the identification keys for this genus and the characteristic tables for its species , three isolates as B. licheniformis , one isolate was identified as B. subtilis , one isolate as B. circulans , four isolates as Paenibacillus dendritiformis , and two isolates showed intermediate characteristics between B. circulans and P. dendritiformis . Comparison of whole – cell protein patterns obtained from SDS – polyacrylamide gel electrophoresis of representative isolates of the classified groups, confirmed the classification. DNAs were isolated from some isolates , purified and preserved for future studies.
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