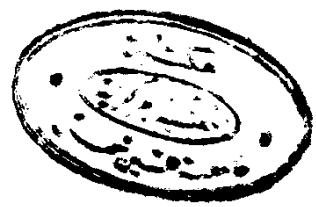
UTILIZATION OF WHEY FOR THE PRODUCTION OF SOME BIOLOGICAL SUBSTANCES

BY

OSMAN ABDEL-ALEEM ABDEL-LATEEF



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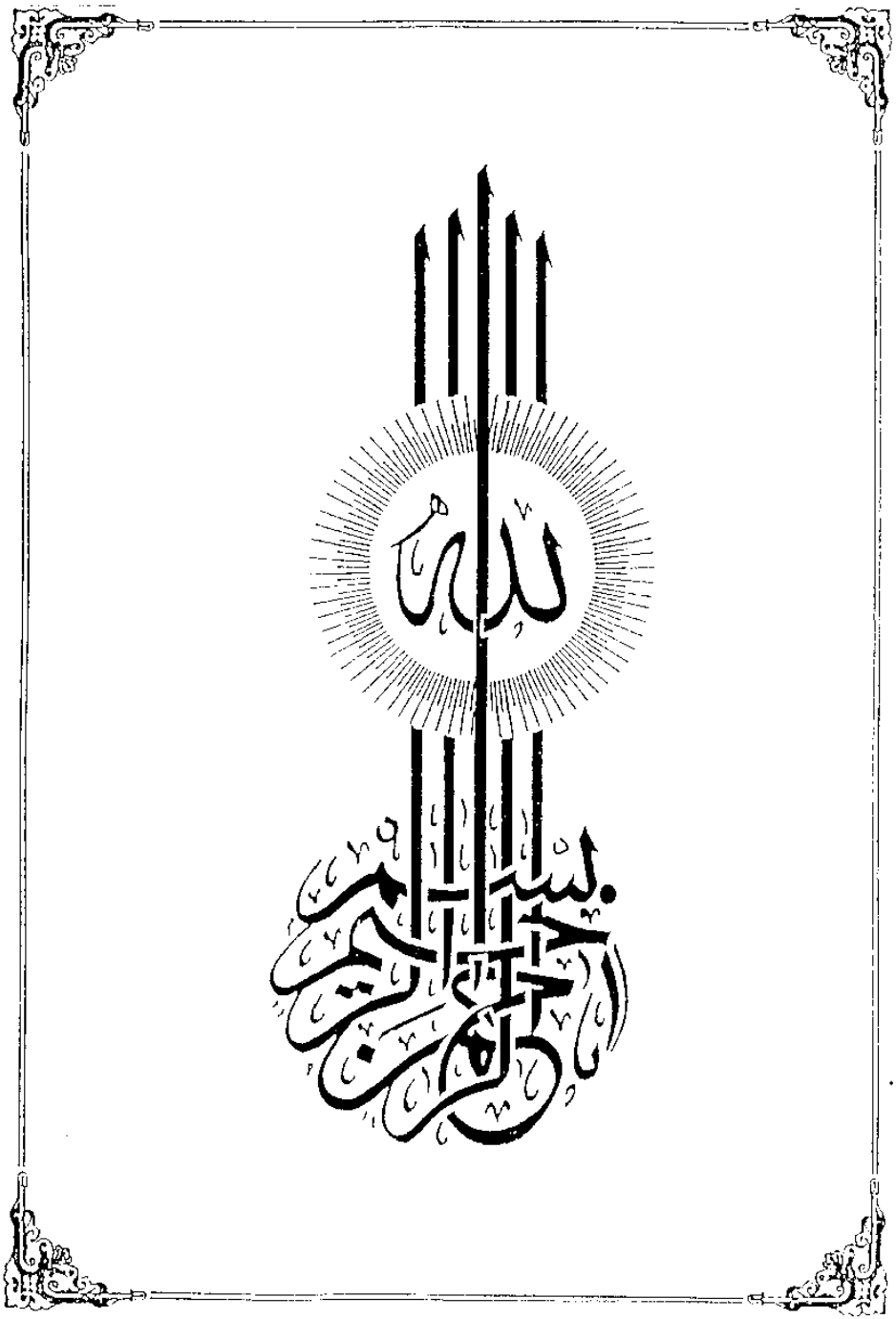

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ABSTRACT

This study was implemented to investigate characteristics (growth, O.D., growth rate (u) and doubling time, t.d) and productivity (biomass amount g/1, vitamin B12 yield mg/1, B12/biomass ratio, utilized lactose % and the culture final BOD) of five strains belonging to Propionibacterium freudenreichii Subsp.freudenreichii (EMC 1137), P.freudenreichii Subsp.Shermanii (EMC 1140, 1163), and P.jensenii(EMC 1142, 1143)grown in whey permeate containing 5 mg/1 cobalt chloride at 30°C for 11 day (264 h). Strains, P.freudenreichii Subsp.Shermanii EMC 1140 and EMC 1163 proved to have the highest growth activity and productivity.

Besides, effect of some nutritional additives on activity and productivity of both strains (P.freudenreichii Subsp.Shermanii EMC 1140 and EMC 1163), which were grown in whey permeate containing 5 mg/1 cobalt chloride and 15 ppm 5, 6 dimethylbenzimidazole, were studied.

The results obtained indicate that the preferable concentrations of these nutrational additives to be added to whey permeate, were 1 , 1.5% yeast extract;15.0, 15.0% kefir whey, 0.25, 0.25% choline chloride, 0.25, 0.25% glutamic acid, 0.25, 0.25% rape seed extract and 0.25, 0.75% sodium lactate, for both strains, respectively. Such results could be considered as a good guide to utilize cheese whey as a bacterial medium for biomass production and B12 biosynthesis.

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