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Entrapment of L-Arginase in Alginate Beads: A Promising Way Forward as Anticancer Agent

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ABSTRACT

Multiple applicability of therapeutic potential obtained from L-arginase, especially highly purified ones, is being widely appreciated these days in scientific fields. Due to lesser physiological stability and its non acceptance in human body due to allergic reactions, its use is however hampered. Hence, this study, while hypothesizing that enabling entrapment of L-arginase in adequate matrix may be biologically acceptable, aimed to immobilise the L-rginase produced by Actinomycete and to assess its stability at varied pH, temperature and in serum under in vitro conditions. The alginate beads formed herein were of uniform size (4.00 mm in external diameter) and have shown entrapment efficiency of 84.23±0.63 %.The stability of entrapped L-arginase at different pH and temperature was found to be significantly increased/ high (p value 0.001). The enzyme retained its cent percent activity even after 5 hours of preincubation of alginate beads under spectrum of conditions. No loss in activity of L-arginase occurred upon its incubation in commercially available fetal bovine serum. This study hence opens vistas of further research opportunities in alleviation of suffering of cancer patients as alginate entrapment has proven longer bioavailability and hence greater efficiency cum effectiveness of L-arginase herein as anticancer agent.