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Abstract	:	Probiotics are susceptible to heat and other adverse conditions. This study aimed to assess the effectiveness of a heterogeneous encapsulant of sodium alginate (Alg) and palm kernel cake (PKC) combined starch (S) coating in safeguarding the survivability of Lactiplantibacillus plantarum ATCC 8014 during thermal exposure and in-vitro release, and to identify storage stability of immobilized probiotic beads. All samples had high microencapsulation efficiency within 95-97%. Larger beads coated with a thicker coating protected probiotics from pH changes and high heat. Samples containing PKC had the highest activation energy compared to those without PKC and starch. Alg 3%, 1:1 + S4% samples performed exceptionally well with high post-simulated heat survival and in-vitro release. Starch-coated beads stored at 4°C for 60 days had the highest survival rate, indicating that this temperature was the optimal condition for preserving probiotics. Therefore, this formulation would be appropriate and stable pellet feed additives.