IMPROVEMENTS IN SEPARATION OF PEPTIDES USING CAPILLARY ELECTROPHORESIS

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ABSTRACT

In this review, various aspect concerning the resolution of capillary electrophoresis for nine standard peptides (namely, bradykinin, bradykinin fragment 1-5, substance P, Arg-vasopressin, luteinizing hormone-releasing hormone (LHRH), bombesin, leucine-enkephalin, methionine-enkephalin and oxytocin). The experiment were carried out using 100 mM phosphate buffer as the separation buffer, added with acetonitrile (ACN) and triethylamine (TEA) as an additive at low pH. The resolution of these peptides was examined at different concentrations of ACN (0, 10, 20, 30, 40, 50 and 60 %) and TEA (0, 5, 10, 20, 30, 40 ppm) at their respective final pH. The results showed that the resolution was improve when 10 % of ACN added in the BGE. The optimum resolution found at 40 % ACN where all peptides were resolved at baseline. The shape was perfectly symmetrical. As for the TEA addition, adding 5 ppm already improve the peaks and addition of 30 ppm TEA gives the optimum resolution compare to all. For both ACN and TEA, adding more concentrated additive gives poor resolution of peptides. The investigation was continued by applying voltage (23, 24, 25, 26 and 27 kV). Shorter time separation achieved when voltage increased. The best resolution found at 25 kV. However, more voltage caused poor resolution.