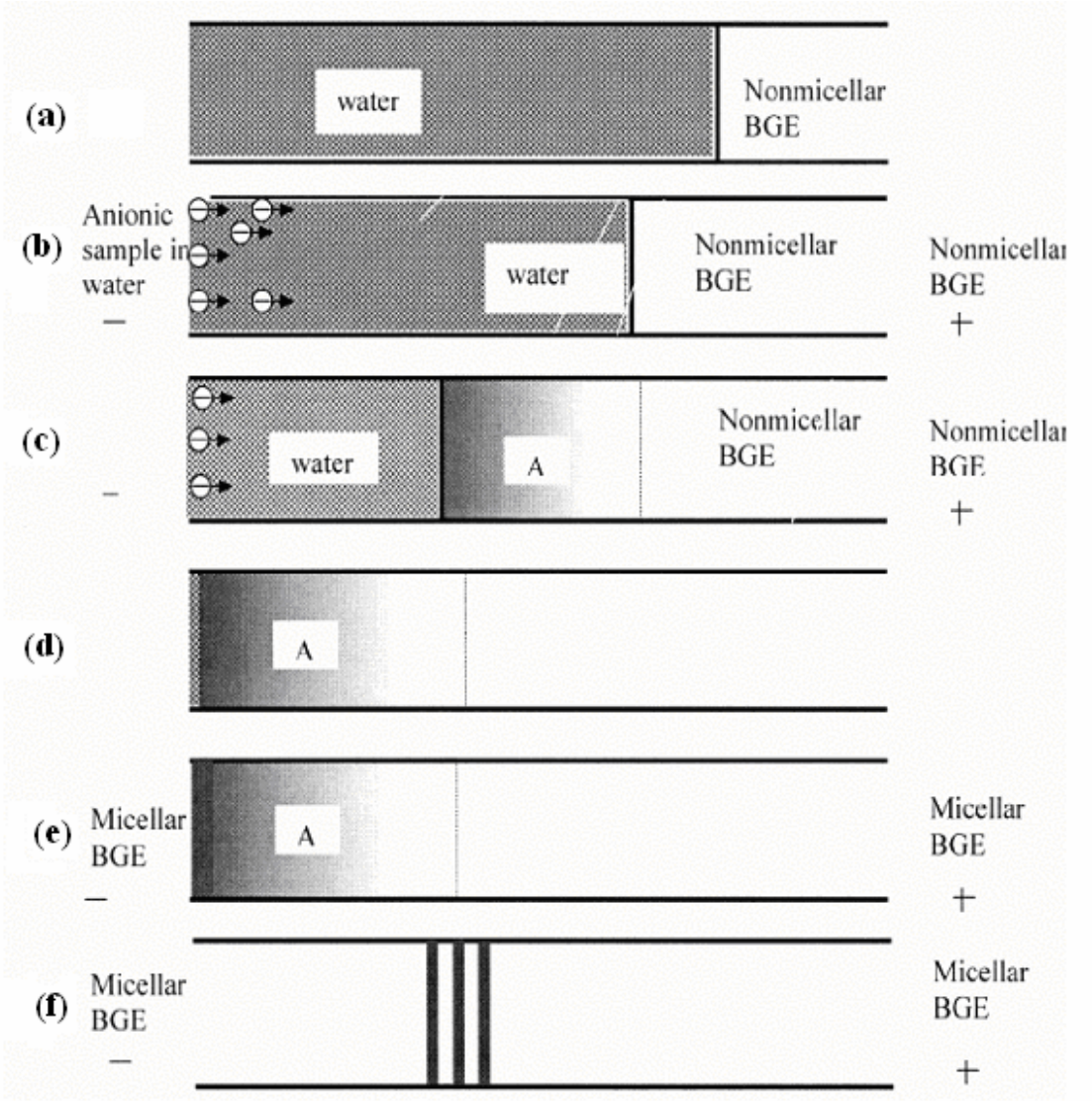

Fig. 11. Schematic illustration of the anionic sample stacking mechanism of the ASEI-sweeping-MEKC model

(a) after filling the capillary with low-pH nonmicellar electrolyte, a water plug is injected into the capillary (b) negative voltage is applied with positive electrode at the capillary outlet, and the sample is electrokinetically injected into the capillary. Due to the high electric field, the anions move rapidly toward the outlet. At the same time, the water plug is moving out of the inlet of the capillary; (c) when the sample anions enter the boundary of water and low-pH BGE, they are neutralized and cease moving. (d) injection is halted and both vials at inlet and outlet are changed to low-pH micellar BGE; (e) negative potential -30 kV is applied to permit the micelles to enter the capillary and sweep the focused sample zone as a narrow band. (f) subsequent separation is achieved under MEKC mode. Adapted from ref. [31].

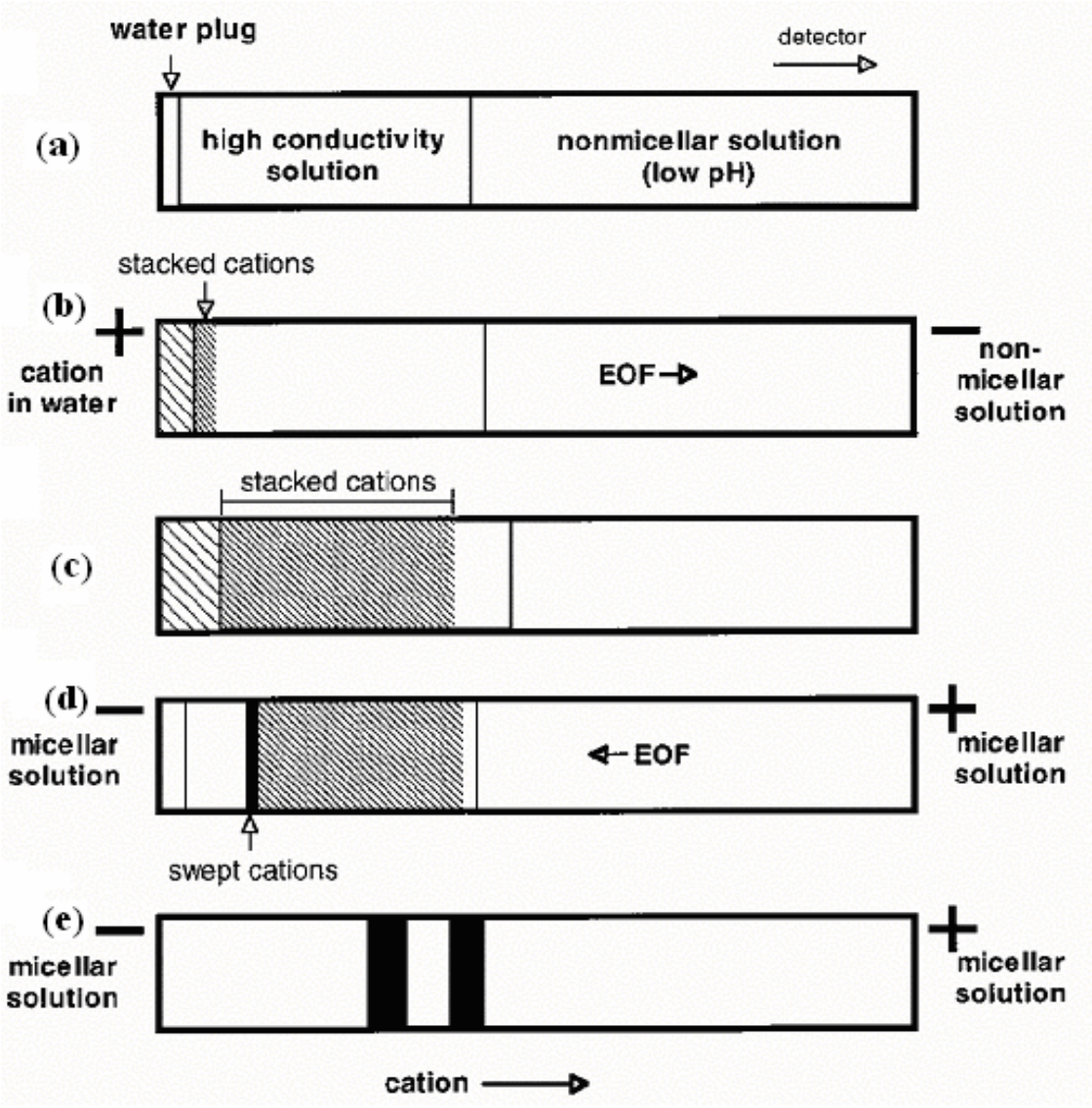

Fig. 12. Evolution of analyte zones in CSEI-sweep-MEKC
(a) conditioning of the capillary with a nonmicellar background buffer, injection of a high-conductivity buffer, and injection of a short water plug; (b) electrokinetic injection at positive polarity of cationic analytes prepared in a low-conductivity matrix or water, nonmicellar background buffer found in the outlet end, cationic analytes focus or stack at the interface between the water zone and high-conductivity buffer; (c) injection is stopped and the micellar background solutions are placed at both ends of the capillary, shows the profile of the analytes after FESI; (d) application of voltage at negative polarity that will permit entry of micelles from the cathodic vial into the capillary and sweep the stacked and introduced analytes to narrower bands; (e) separation of zones based on MEKC. Other explanations are given in the text. Adapted from ref. [33].

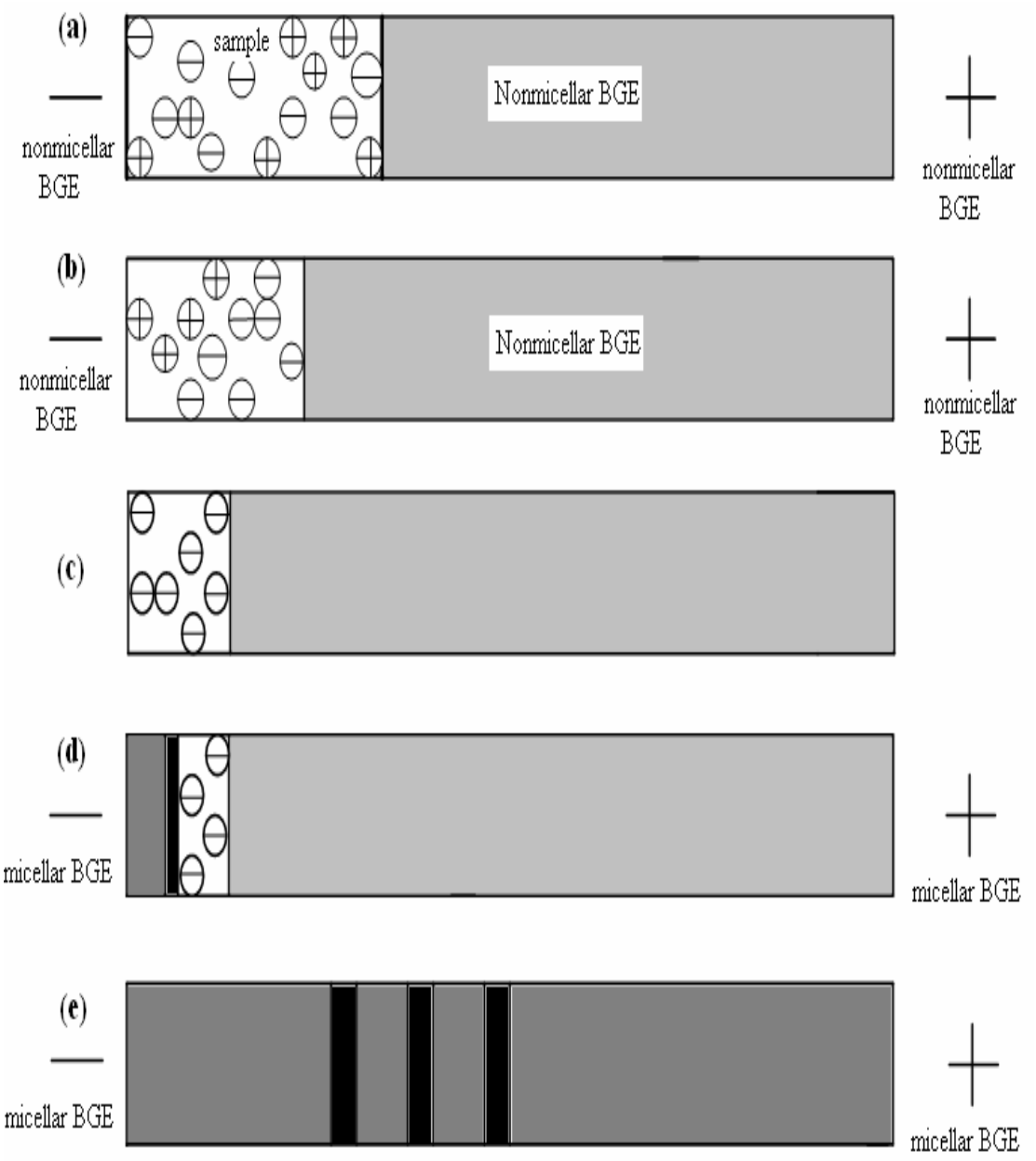

Fig. 13. Evolution of analyte zones in LVSS-sweeping-MEKC
(a) A large-volume sample (prepared in water) was injected hydrodynamically (b) the voltage was applied with reversed polarity (reversed EOF direction), the sample-matrix was pushed back into the inlet vial by the EOF; (c) anionic analytes were focused on passing through the concentration boundary and both vials at inlet and outlet are changed to low-pH micellar BGE; (d) optimal stacking was achieved, negative potential is applied to permit the micelles to enter the capillary and sweep the focused sample zone as a narrow band. (e) subsequent separation is achieved under MEKC mode.