

Electrophoresis: what does a century old technology hold for the future of separation science?

ABSTRACT

Electrophoretic separation was first demonstrated in the year of 1807 and has since been a staple tool used by biologists and chemists for more than a century since its inception. From the initial crude paper electrophoresis system to today's modern automated electrophoresis system, the development of electrophoresis systems have been driven by the advancement of technology such as miniaturization, precision engineering, biochemistry, electrical and electronics. These advancements were introduced to meet the requirement for faster and better resolution of results. This paper reviews the evolution of the electrophoresis technology over one century and provides an insight into the possible future development of electrophoresis. Various aspects of the electrophoresis system such as the performances, designs, usages, separation phases, and biochemistry were analysed. The technological advancements for this field have been evidenced by the increasing complexity of the electrophoresis system. A peek into the possible future for the world of electrophoresis has been provided by drawing insights from the missing links of current technologies. It is both exciting and equally perplexing to explore the promises that this seeming simple separation technology holds for the future.

Keyword: Development; Electrophoresis; Future; History; Progress.