

The Many Roles of Separation Science in Developing Countries: the Colombian Case.

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A brief overview of science education and other social and political factors that affect the scientific research in developing countries will be presented, together with the consequences of technological dependence, taking Colombia (South America) as an example to highlight various routes and possibilities for development. Within this context, the main areas of separation science progress in Colombia are based mainly on applications to environmental, quality control, forensic, medical, and other fields of economic and social relevance. Particular situations will be illustrated, such as the study of bioactive natural products and the search for new fragrances from tropical plants in order to establish the national essential oil industry, which could improve rural economy, create more jobs for peasants and, to some extent, substitute crops of illicit use, for value-added natural products. Separation science plays a fundamental role in the studies that support these developments, such as the *in vivo* monitoring of volatiles from plants and tropical flowers, or the determination of the dependence of essential oil composition on geo-botanical and physiological factors. Additionally, an interesting example on the combination of different extraction methods with modern separation techniques, used to determine the cause of massive death in poultry farms will be provided.