

AUTOMATED MULTIPLE DEVELOPMENT THIN LAYER CHROMATOGRAPHY FOR SEPARATION OF OPIATES ALKALOIDS AND DERIVATIVES

Nicole Galand, Jacques Pothier

*University François Rabelais de Tours, Laboratory of Pharmacognosy, Faculty of
Pharmacy,
31, Avenue Monge, 37200 – F – TOURS*

Abstract

There are three types of Opiates alkaloids. The first is constituted by the Poppy alkaloids extracted from *Papaver somniferum*, the second category whose most of them are semisynthetic derivatives and which are used in therapy as antitussives and analgesics and the third class consisted of narcotic compounds and other opiates employed as substitutes in the treatment of addiction.

Automated Multiple Development (AMD) is an instrumental technique for separation of compounds of similar chemical properties, even with position isomerism, by using a solvent gradient on high-performance thin layer plates (HPTLC).

This work was to optimise the performance of AMD applied to Opium alkaloids and some derivatives: Ethylmorphine, Pholcodine, Dextromethorphan, Heroin, Buprenorphine, and Methadone

The best results for the separation of Opium alkaloids and derivatives were obtained with the eluent: methanol 100, methanol - acetone 50/50, acetone 100, ethyle acetate 100, ethyle acetate - methylene chloride 50/50, methylene chloride 100

For antitussive compounds it was necessary to employ an another gradient: methanol saturated with NH₃ 100, acetone 100, acetone 100, ethyl acetate 100, ethyl acetate – methylene chloride 50/50, methylene chloride 100 (fig. 1).

AMD can have applications to control the quality of Opium used in therapeutic according to the norms required by the Pharmacopeiae. The best resolution and the lack of diffusion makes that AMD is the method which is the most available for densitometry and can be an alternative to isocratic chromatography described in many Pharmacopeiaes.

This technique could be applied to the determination of Poppy constituents but also in pharmaceutical analysis for antitussives, and above all in the field of abuses in toxicology.