



## Bithiophenic MALDI matrices as valuable leads for the selective detection of alkaloids

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Résumé en anglais	<p>Alkaloids represent a group of biologically most interesting compounds commonly used in modern medicines but also known for exhibiting severe toxic effects. Therefore, the detection of alkaloids is an important issue in quality control of plants, dietary supplements, and herbal pharmaceutical and mostly facilitated by methods such as GC or LC-MS. However, benefitting from the development of selective matrices as well as requiring very little sample preparation, MALDI-MS may also provide a valuable supplement to these standard analytical methods. With this in mind, the present study highlights recent advances in the development of bithiophenic matrix molecules designed for the selective detection of alkaloids. Overall four new bithiophenic matrix molecules (BMs) were tested on different analytes belonging to various chemical families such as alkaloids, curcuminoids, benzopyrones, flavonoids, steroids, and peptides (I). All BMs were further compared to the commercial matrices <math>\alpha</math>-cyano-4-hydroxycinnamic acid (CHCA) and 2,5-dihydroxybenzoic acid (DHB) in terms of their signal response as well as their matrix noise formation (II). Based on these results the most promising candidate, 3-(5'-pentafluorophenylmethylsulfanyl-[2,2']bithiophenyl-5-ylsulfanyl)propionitrile (PFPT3P), was tested on highly complex samples such as the crude extracts of <i>Colchicum autumnale</i>, RYTMOPASC® solution (a herbal pharmaceutical containing sparteine and rubijervine), as well as strychnine-spiked human plasma (III). For the latter, an evaluation of the limit of detection was performed. Eventually, a simplified protocol for the direct MALDI detection of major alkaloids from pulverized plant material of <i>Atropa belladonna</i> and <i>Senecio vulgaris</i> is presented (IV).</p>
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