Injection capacity test on Analytical FCPC® with 50 ml column for piperine purification from black pepper extract

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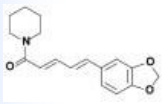
Introduction

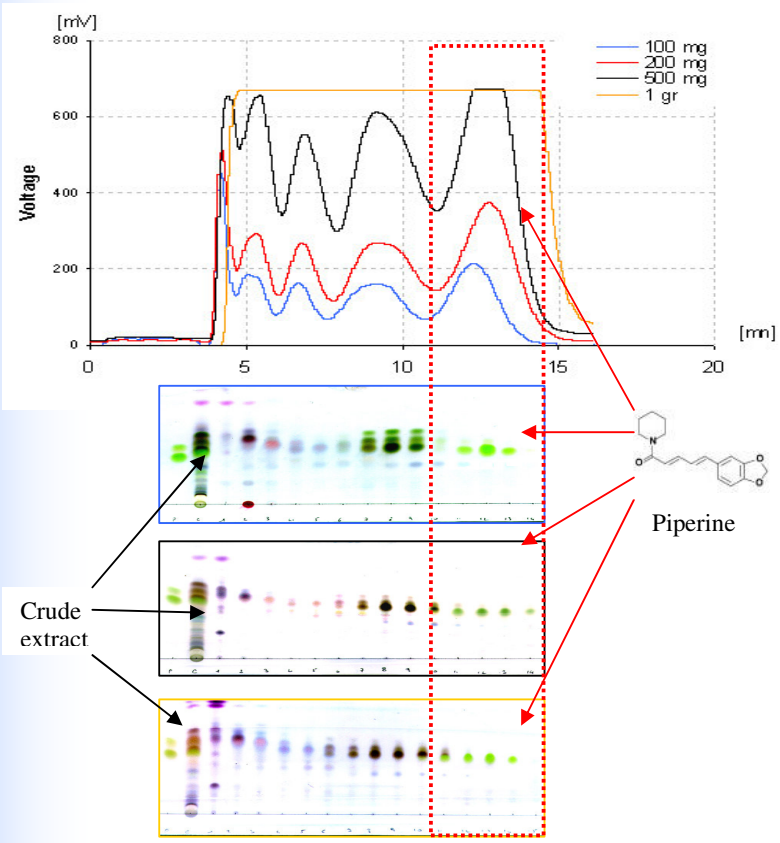
Black pepper (*Piper nigrum*) is a flowering vine in the family Piperacea, cultivated for its fruits, which is usually dried and used as a spice and seasoning.

Piperine (C ($C_{17}H_{19}NO_3$) is the alkaloid responsible for the taste and smell of black pepper. It has also been used in some forms of traditional medicine and as an insecticide.



Four trials were done on Analytical FCPC® equipped with 50ml column to follow resolution of the separation between 100, 250, 500 and 1000 mg injection of crude *Piper nigrum* extract. Detection was done with UV/Vis detector at 254 nm and TLC analysis of the fractions on silica gel 60 with fluorescent indicator UV 254 and vanillin sulphuric.

Results



UV 254nm FCPC® chromatograms of crude *Piper nigrum* extract

TLC of fractions from 100 mg trial

TLC of fractions from 500 mg trial

TLC of fractions from 1 gr trial

Parameters	
Flow-rate	8 ml/mn
Rotation speed	2000 rpm
Quantity injected	100, 250,500 and 1000 mg (in 1, 2,3 and 4 ml)

Results	
Separation time	15 mn
Solvent consumption	170 mL

Conclusions

CPC chromatogram and TLC shows that a increase of the injected mass will not reduce significantly resolution, but will increase concentration of piperine in fraction 11, 12, 13 and 14. For this application, analytical FCPC® allows up to 1gr injection of complex crude mixture with good resolution in 15 mn.

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