

application note

Morphine and Codeine in Wild Poppies

For over one hundred years, following the introduction of European cereal crops to Australia, wild poppies have been a problem weed, especially in oatfields after good seasonal rainfall. Two species of poppy, tentatively identified by botanical experts as *Papaver setigerum* and *Papaver hybridum*, with mauve and red flowers respectively, are often seen during spring harvest. Contrary to popular belief that only the 'Opium Poppy', *Papaver somniferum*, produces morphine and related alkaloids, these wild poppies may also contain narcotic alkaloids.

Keywords:

Codeine, morphine, *Papaver setigerum*, *Papaver hybridum*, wild poppies

In Figure 1, a methanolic extract of dried *P. setigerum* capsules shows morphine and codeine at 0.02% and 0.04% by weight, respectively. More efficient extraction of these alkaloids from the same plant material may be achieved by using aqueous alkali, as shown in Figure 2, where the observed levels of morphine and codeine are 0.06% and 0.1% respectively.

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HPLC analysis of these poppies revealed that both species contained significant levels of opiate alkaloids, mainly morphine and codeine, with the *Papaver setigerum* being particularly potent.

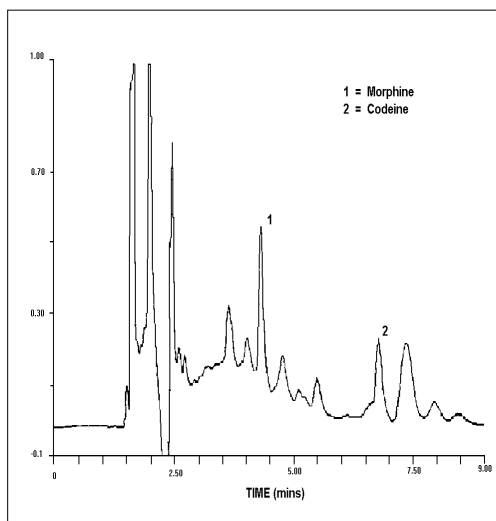


Figure 1 Methanolic extract of *P. setigerum* capsules

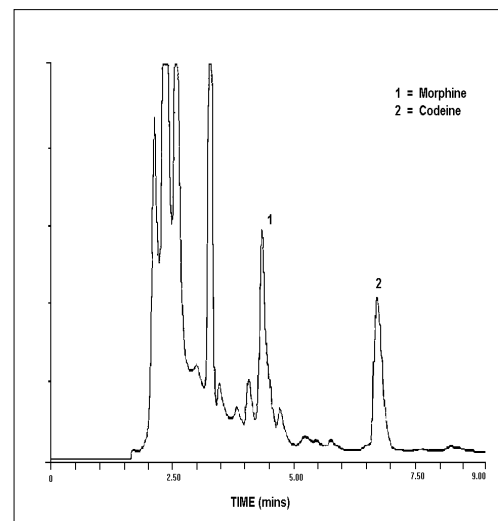


Figure 2 Alkaline extract of *P. setigerum* capsules



GBC HPLC Instrumentation

LC1110 Dual Piston HPLC Pump
LC1200 Variable Wavelength UV/Vis
Detector
Detector
LC1445 System Organiser
LC1650 Advanced Autosampler
WinChrom Chromatography Data
Management System

Conditions

Column: Spherisorb S5 octyl,
250 mm x 4.6 mm ID
Guard Column: Spherisorb S5 Octyl,
50 mm x 4.6 mm ID
Mobile Phase: 20% acetonitrile in water
containing 0.01 M octane
sulphonic acid and 0.2%
triethylammonium phosphate,
pH 3
Flow Rate: 1 ml/min
Wavelength: 285 nm

