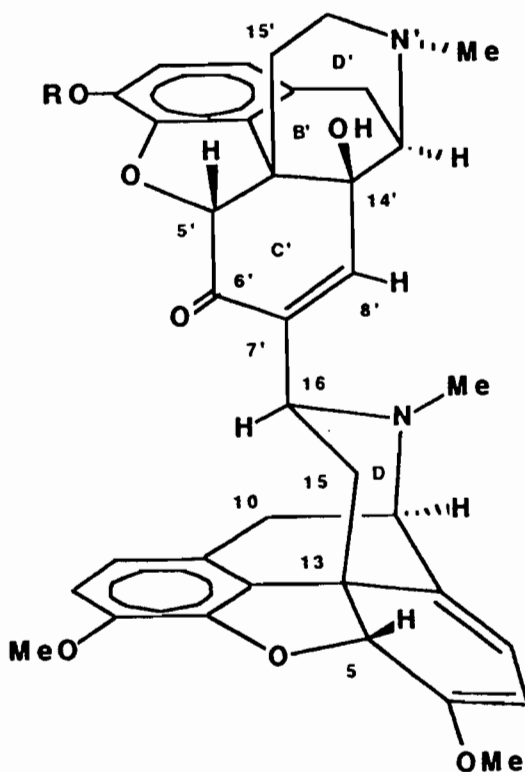




The ^{13}C data suggested a C-16 to C-7' linkage between the two halves, and this was confirmed by the ^3J long-range coupling observed between the ketone carbon and H-16, and an allylic coupling between H-16 and H-8'. The *N*-methyl is very strongly shielded by the conjugated carbonyl. Detailed examination of 2D correlation spectra enabled the unambiguous assignment of all proton and carbon resonances and established the complete structure of somniferine as **1**.

The relative stereochemistry of somniferine was deduced as follows: The observed n.o.e's indicated that the H-5 protons must be cisoid to the ethanamine bridges in both halves and a *g*-gauche effect in ring D' between the C-14' hydroxyl group and C-15' shows that rings B' and C' are cis-fused. The great steric bulk of the hydroxymorphinone residue requires it to be equatorially substituted, and the strong n.o.e observed between the axial H-16 and the equatorial H-10 proves that ring D adopts the chair form in somniferine, whose structure and relative stereochemistry are thus represented by **1**. This also represents its absolute configuration, since the CD spectrum of **1** corresponds closely to a simple summation of the spectra of thebaine (9) and 14-hydroxycodeinone (10).



1 Somniferine R = H
2 O-methylsomniferine R = Me

An exhaustive extraction of the heads and straw of Tasmanian poppies yielded crude opium in 1.88% yield. The alkaloids isolated are shown in Table 2. A second dimeric alkaloid proved to be O-methylsomniferine (2). In addition, several other minor bases have been identified by spectroscopic means. These include codeinone, both thebaine *N*-oxides, laudanosine, laudanine and orientaline.



Table 2: Principal Alkaloids of Tasmanian Opium (%)

	Isolated Yield	by GC
Morphine	43.7	37.2
Narcotine	-	-
Codeine	4.6	5.4
Papaverine	3.4	4.0
Thebaine	8.5	8.8
Oripavine	-	0.3
O-Methylsomniferine	4.3	-
Somniferine	1.9	-

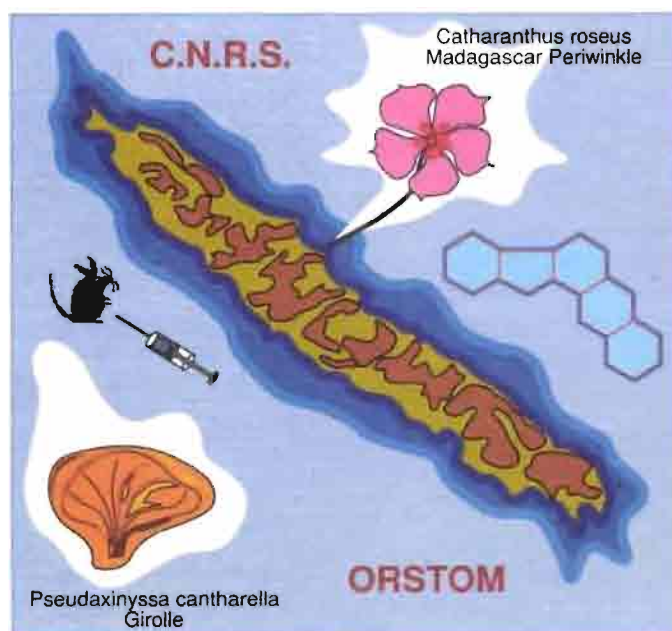
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