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A New Azafluorenone Alkaloid from *Alphonsea Monogyma*

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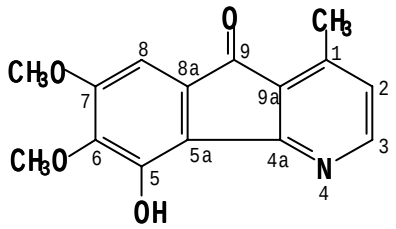
Abstract: A new azafluorenone (onychine) alkaloid, 6,7-dimethoxy-5-hydroxy-onychine, was isolated from the stem and branch of *Alphonsea monogyma*. Its structure was established mainly on the basis of spectral analysis.

Keywords: *Alphonsea monogyma*, 6,7-dimethoxy-5-hydroxy-onychine.

The genus *Alphonsea* (Annonaceae) comprises about thirty species growing in the tropical or subtropical area in Asia, of which six species were found in China. *Aphonsea monogyma*, distributed in the southern area of China, is an evergreen tree, no previous chemical investigation was reported on this species. Up to now, only three species of this genus have been studied chemically, the reported constituents mainly contain alkaloids, furanic diacetylenes and lignans[1-2]. A series of onychine and oxoaporphine alkaloids were isolated from the stem and branch of *A. monogyma*. The present paper reports the identification of a new compound, 6,7-dimethoxy-5-hydroxy-onychine.



6,7-dimethoxy-5-hydroxy-onychine, yellow needles, mp 224-226°C, showed positive reaction to alkaloid test on TLC. MS showed the molecular formula of $C_{15}H_{13}O_4N$.

UV λmax (logε): 206 (4.09), 235 (4.03), 266 (4.33), 292 (4.02) reveal an onychine skeleton, which was confirmed by the typical methyl signal as δ 2.62 and double doublets at δ 6.82 (J=6.0Hz) and δ 8.18 in the ^{1}HNMR spectrum. Two methoxys (δ 4.02 and δ 3.97) and a hydroxy (δ 7.73, exchangeable by D_2O) were revealed according to the ^{1}HNMR data, but the locations of these groups remains to be determined.

Table 1. ^{1}H and $^{13}CNMR$ data of 6,7-dimethoxy-5-hydroxy-onychine (300MHz, $CDCl_3$)

Position	δH (J in Hz)	δC	position	δH (J in Hz)	
1		147.1s	8	6.87 s	101.1d
2	6.82 (d, 6.0)	124.4d	8a		129.5s
3	8.18 (d, 6.0)	150.3d	9		191.5s
4			9a		125.6s
4a		165.5s	1-CH_3	2.56 s	17.2 s
5		147.9s	5-OH	7.73 s	
5a		120.3s	6-OCH_3	4.02 s	61.0 s
6		142.2s	7- OCH_3	3.97 s	56.5 s
7		155.9s			

A COLOC spectrum was run to establish the substitute locations. From the spectrum, the proton signal at δ 6.87 is related to C-9, which suggests a proton at C-8. The carbon signals at δ 142.2 and δ 155.9 are not only correlated to the methoxy proton signals at δ 3.97 and δ 4.02 respectively, but also correlated to signal of H-8. So the 6,7-dimethoxy-5-hydroxy substitute pattern was determined. The chemical structure for the new alkaloid is established as 6,7-dimethoxy-5-hydroxy-onychine and the proton signals and carbon signals were assigned in **Table 1**.

References

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