Supplementary Information

In Vitro Opioid Receptor Affinity and *in Vivo* Behavioral Studies of *Nelumbo nucifera* Flower

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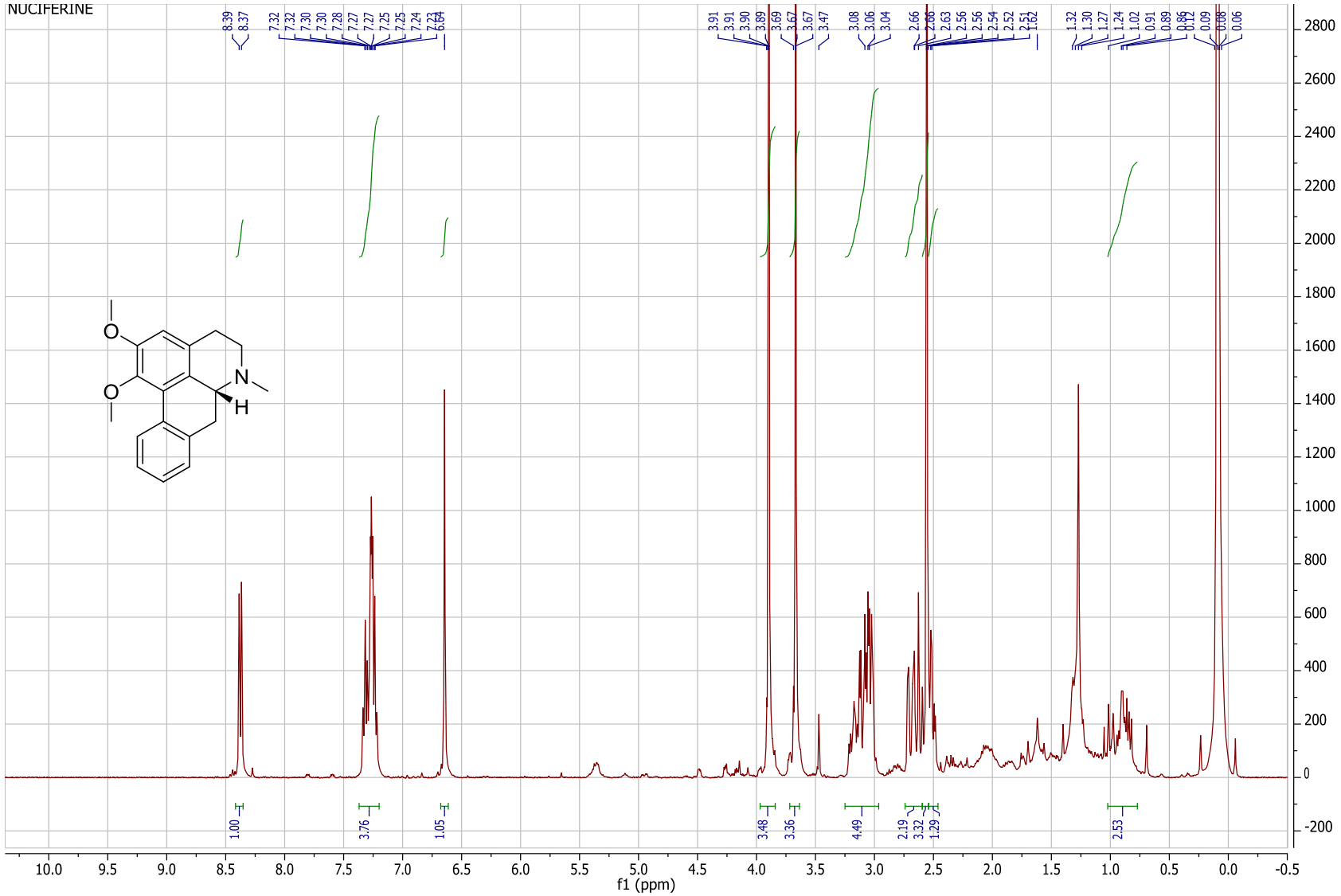


Figure 1S. ^{1}H NMR spectrum of nuciferine (**1**).

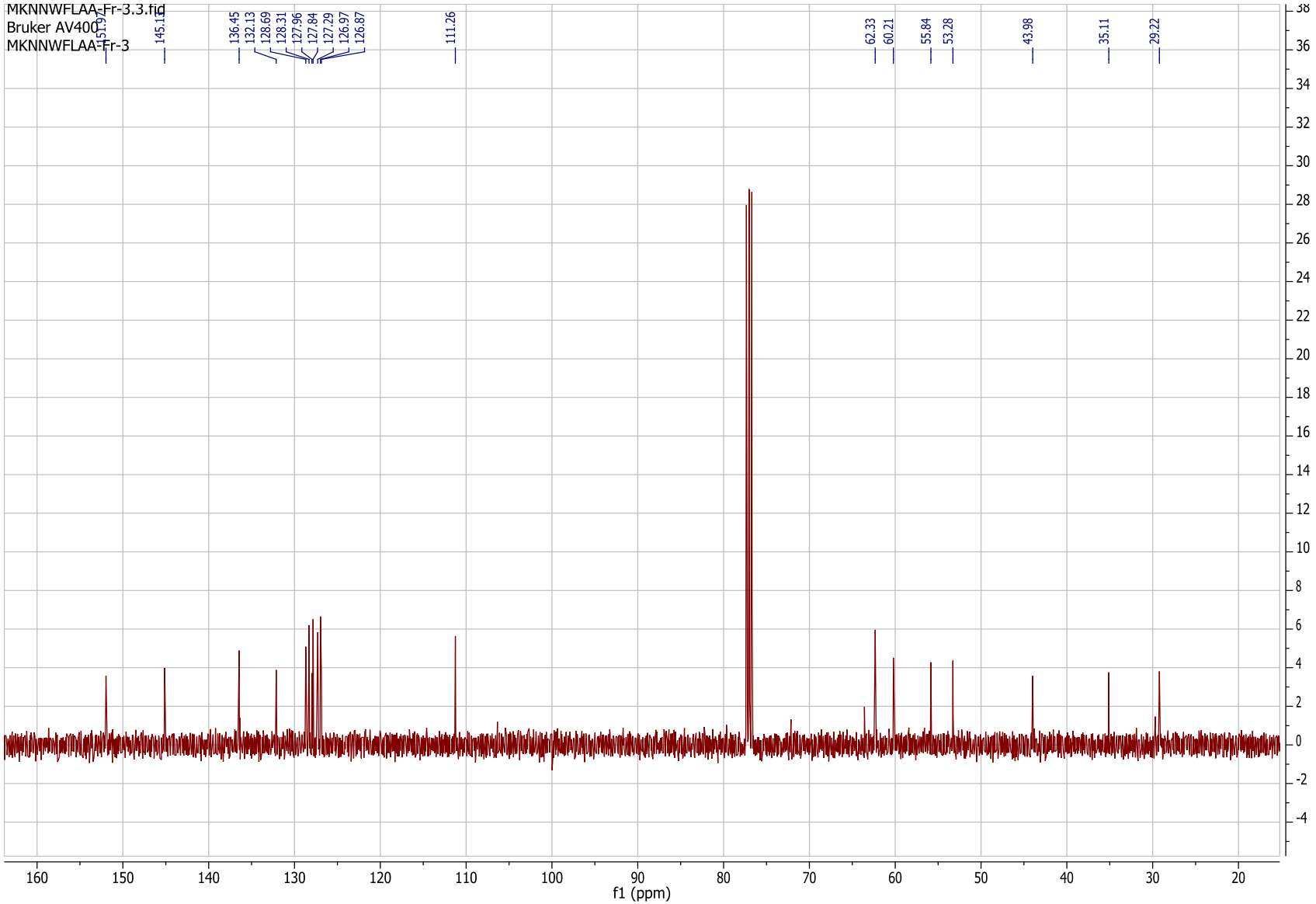


Figure 2S. ^{13}C NMR spectrum of nuciferine (**1**).

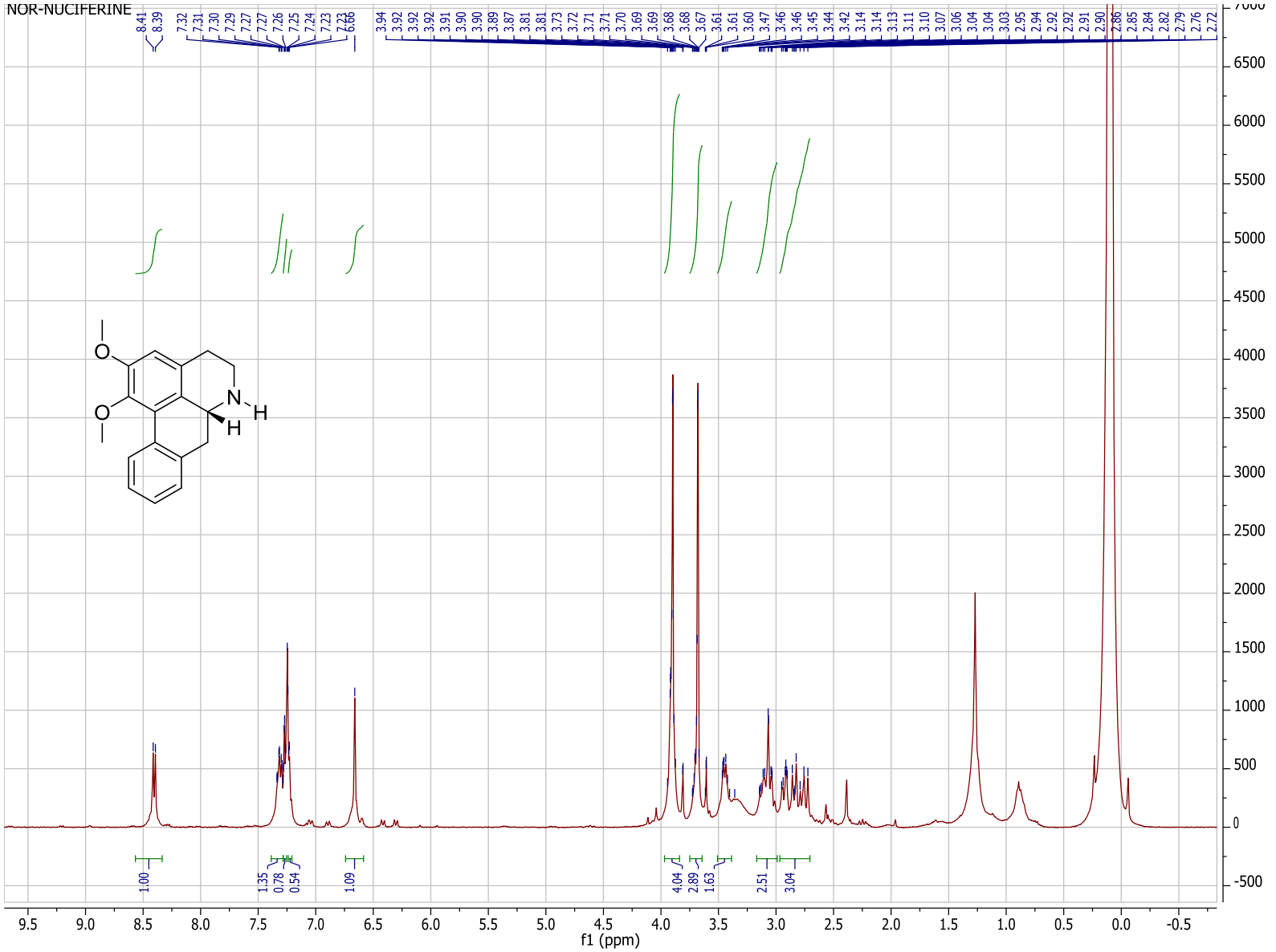


Figure 3S. ^{1}H NMR spectrum of nor-nuciferine (**2**).

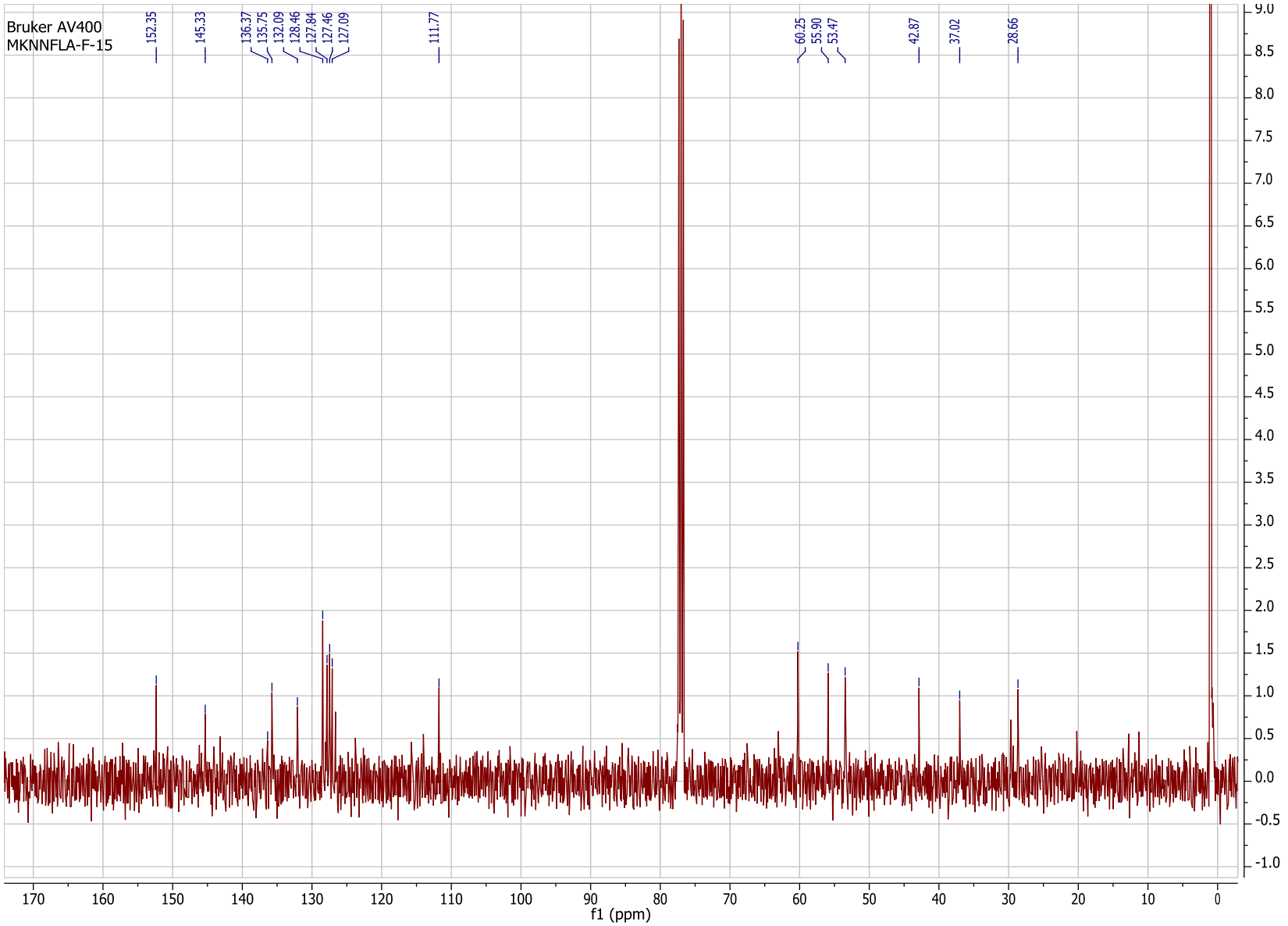


Figure 4S. ^{13}C NMR spectrum of nor-nuciferine (**2**).

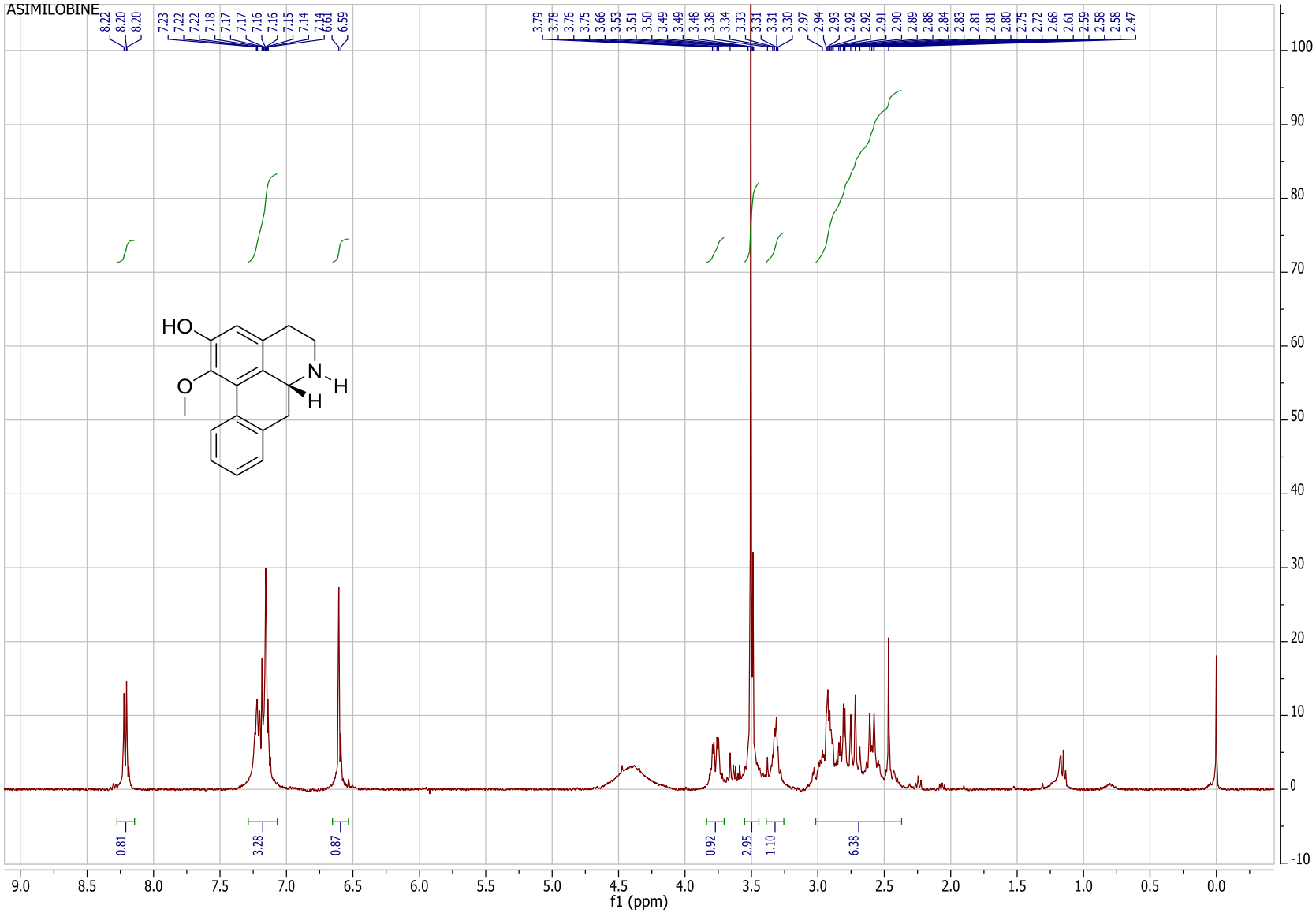


Figure 5S. ^{1}H NMR spectrum of asimilobine (**3**).

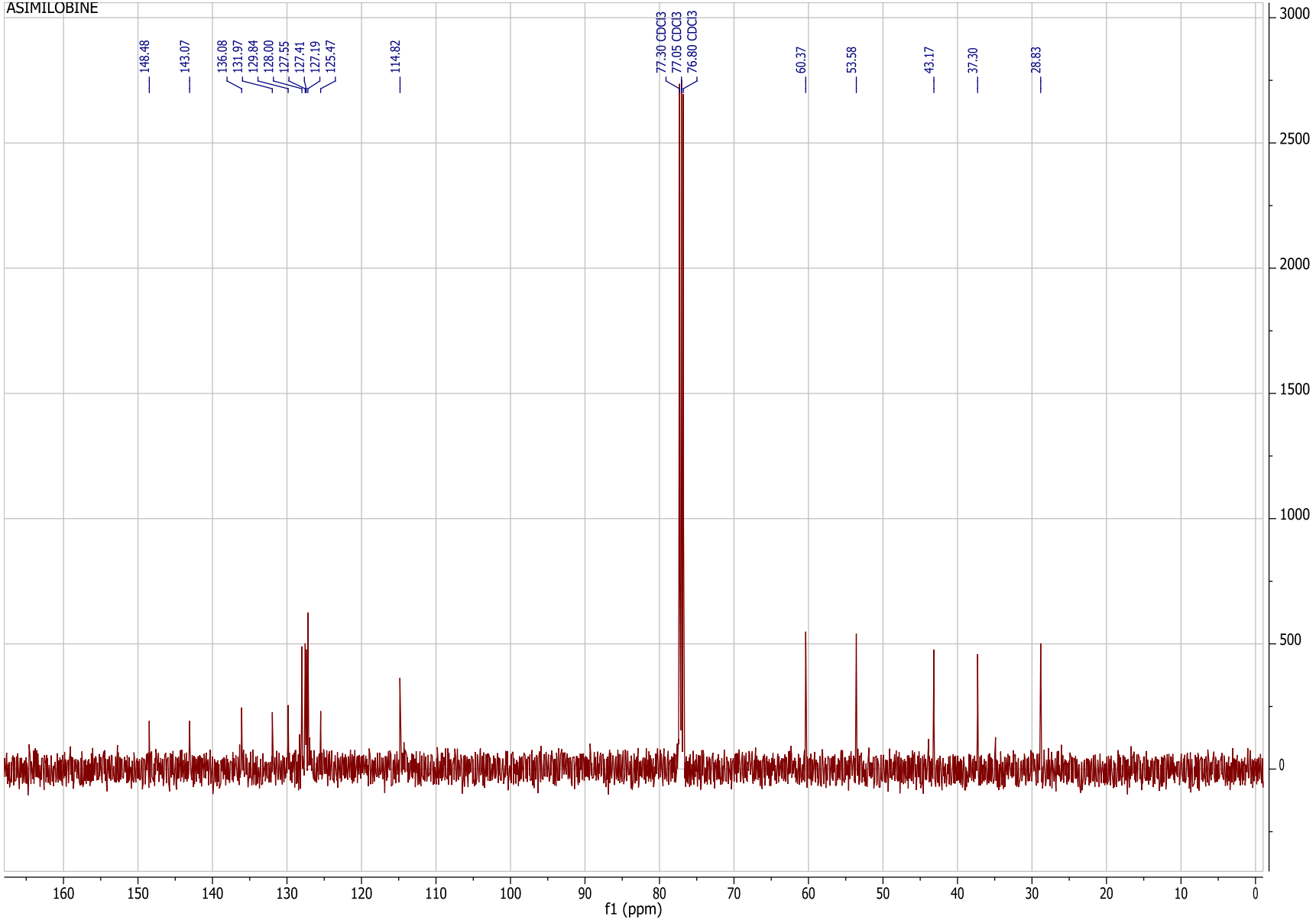


Figure 6S. ^{13}C NMR spectrum of asimilobine (**3**).

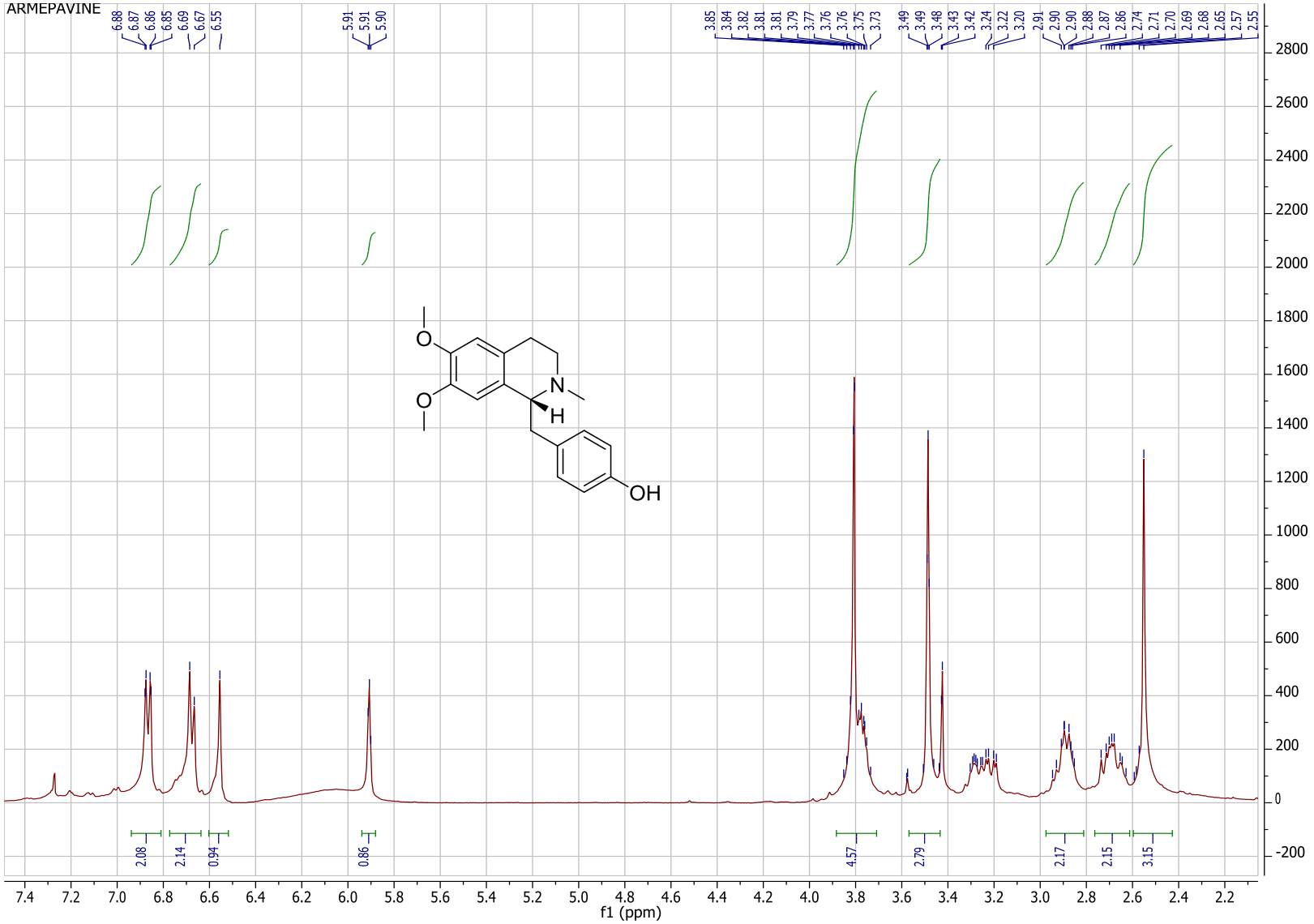


Figure 7S. ^{1}H NMR spectrum of armepavine (**4**).

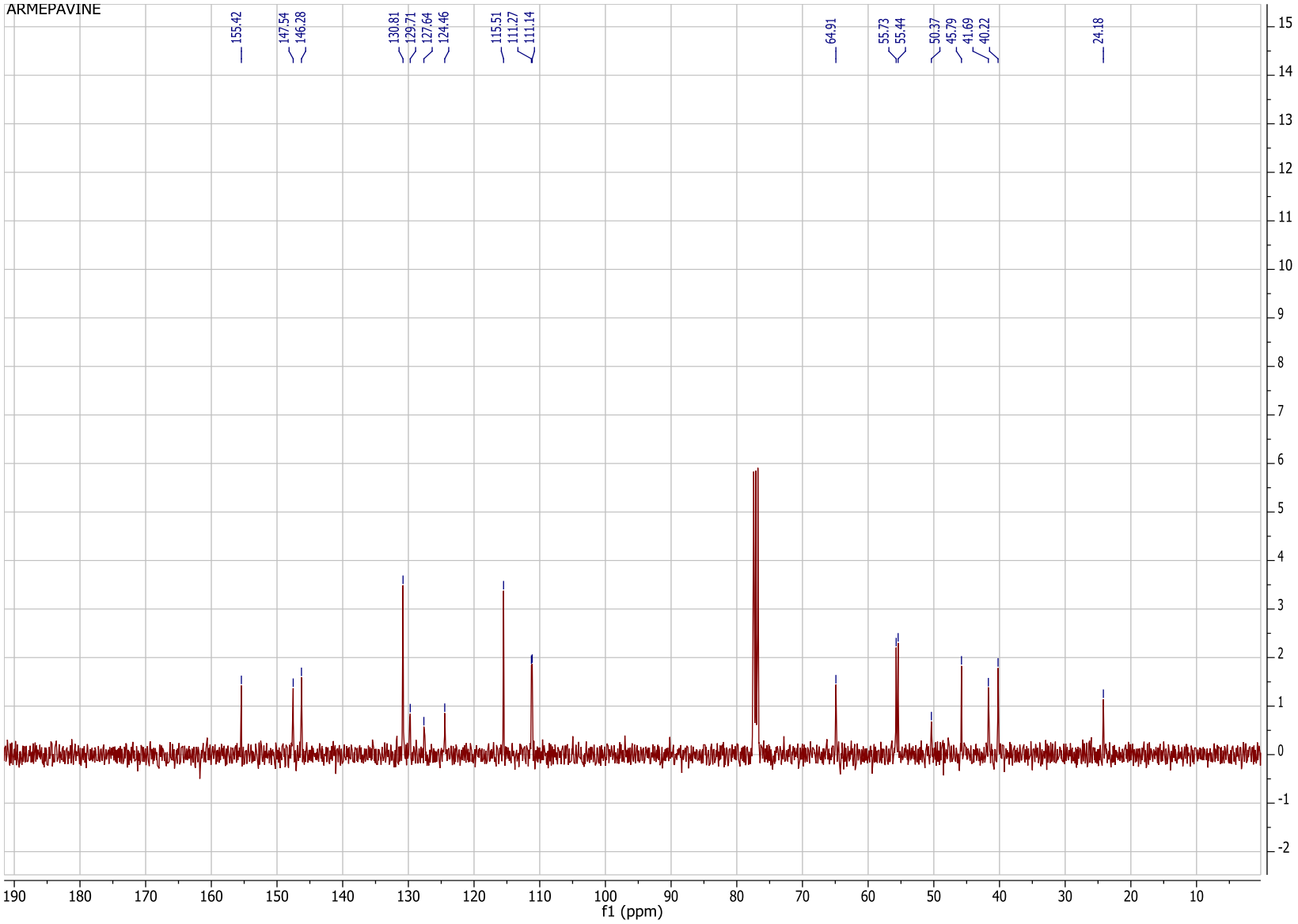


Figure 8S. ^{13}C NMR spectrum of armepavine (**4**).

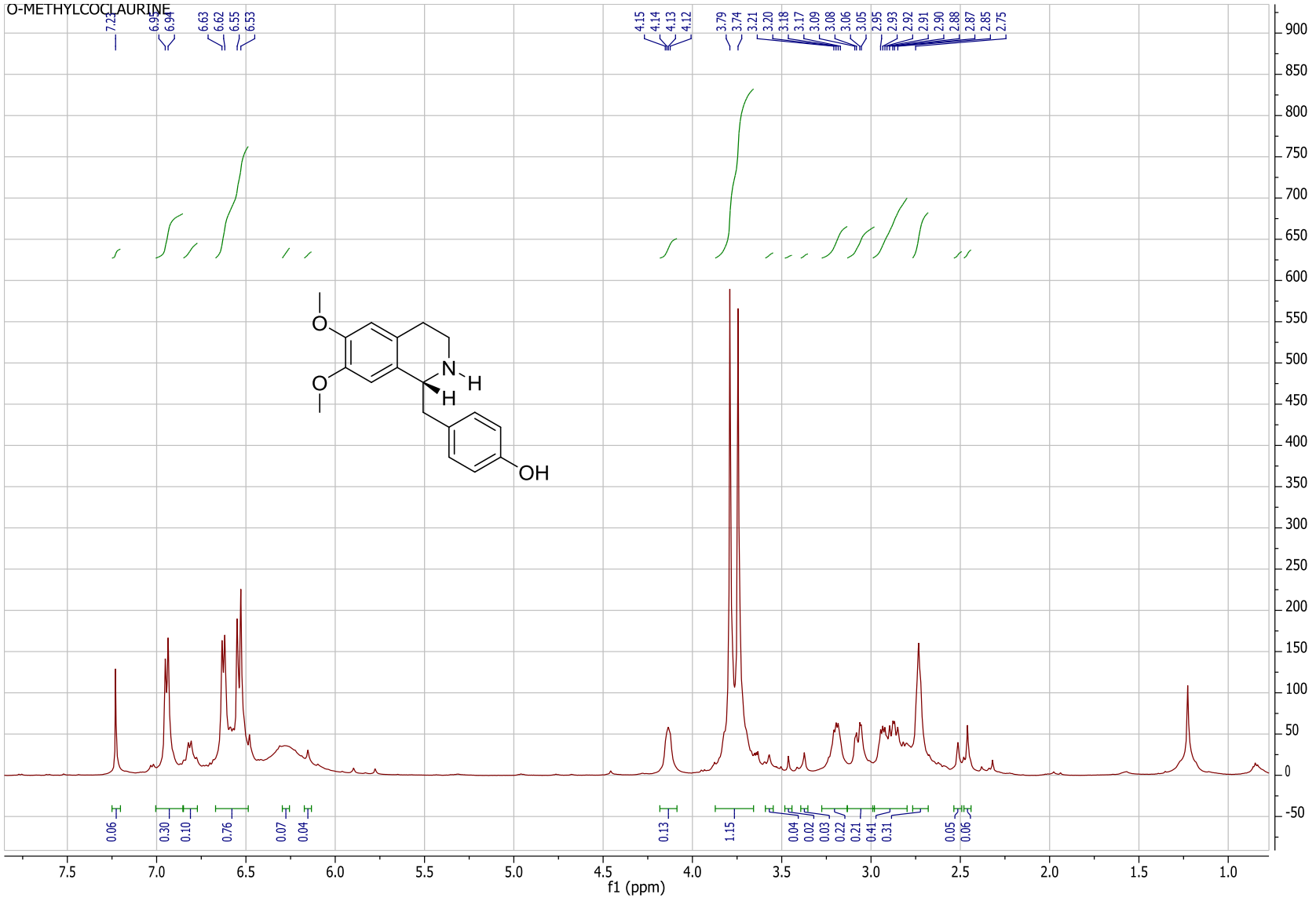


Figure 9S. ^{1}H NMR spectrum of *O*-methylcoclaurine (**5**).

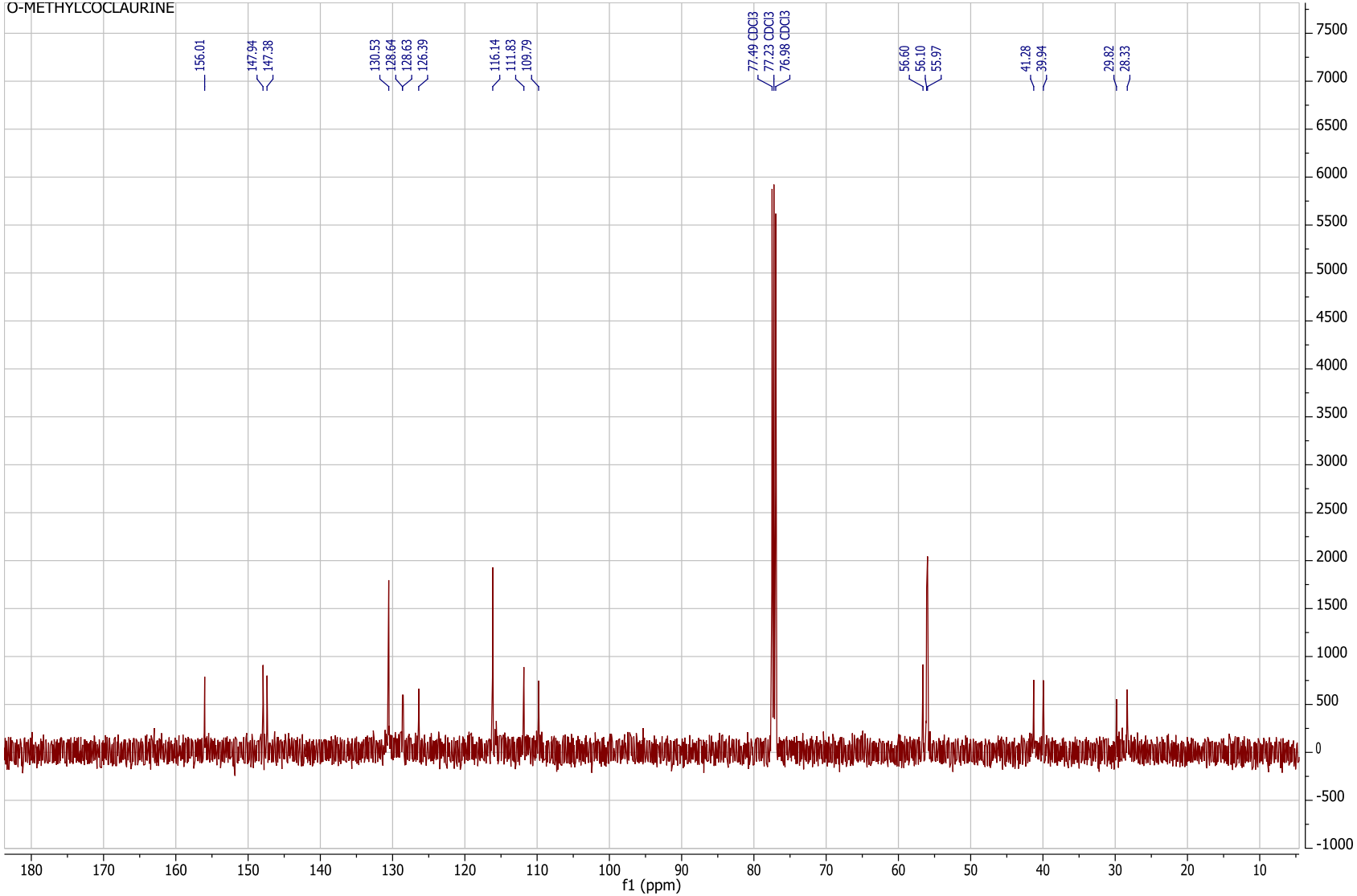


Figure 10S. ^{13}C NMR spectrum of *O*-methylcoclaurine (**5**).

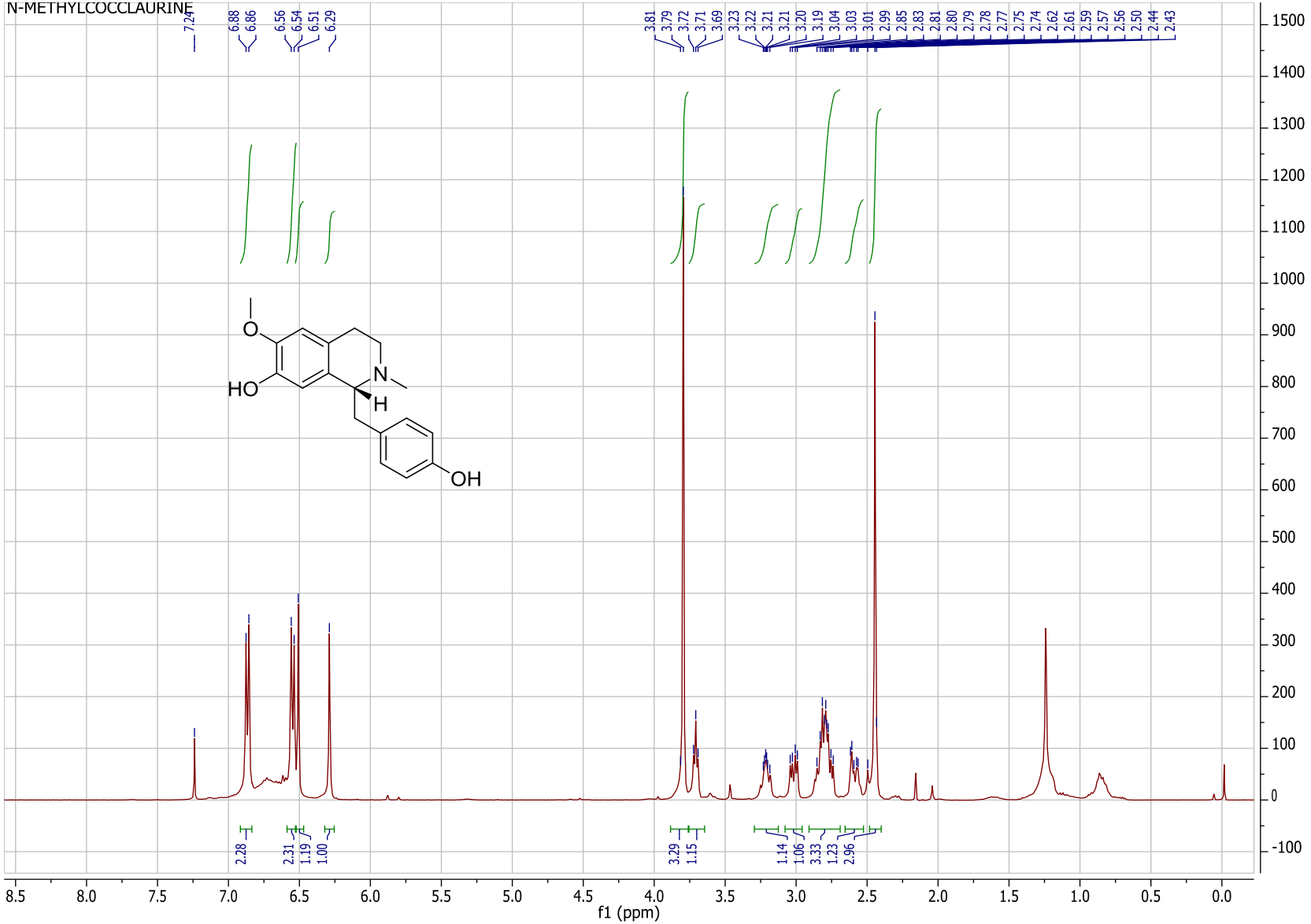


Figure 11S. ^{1}H NMR spectrum of *N*-methylcoclaurine (**6**).

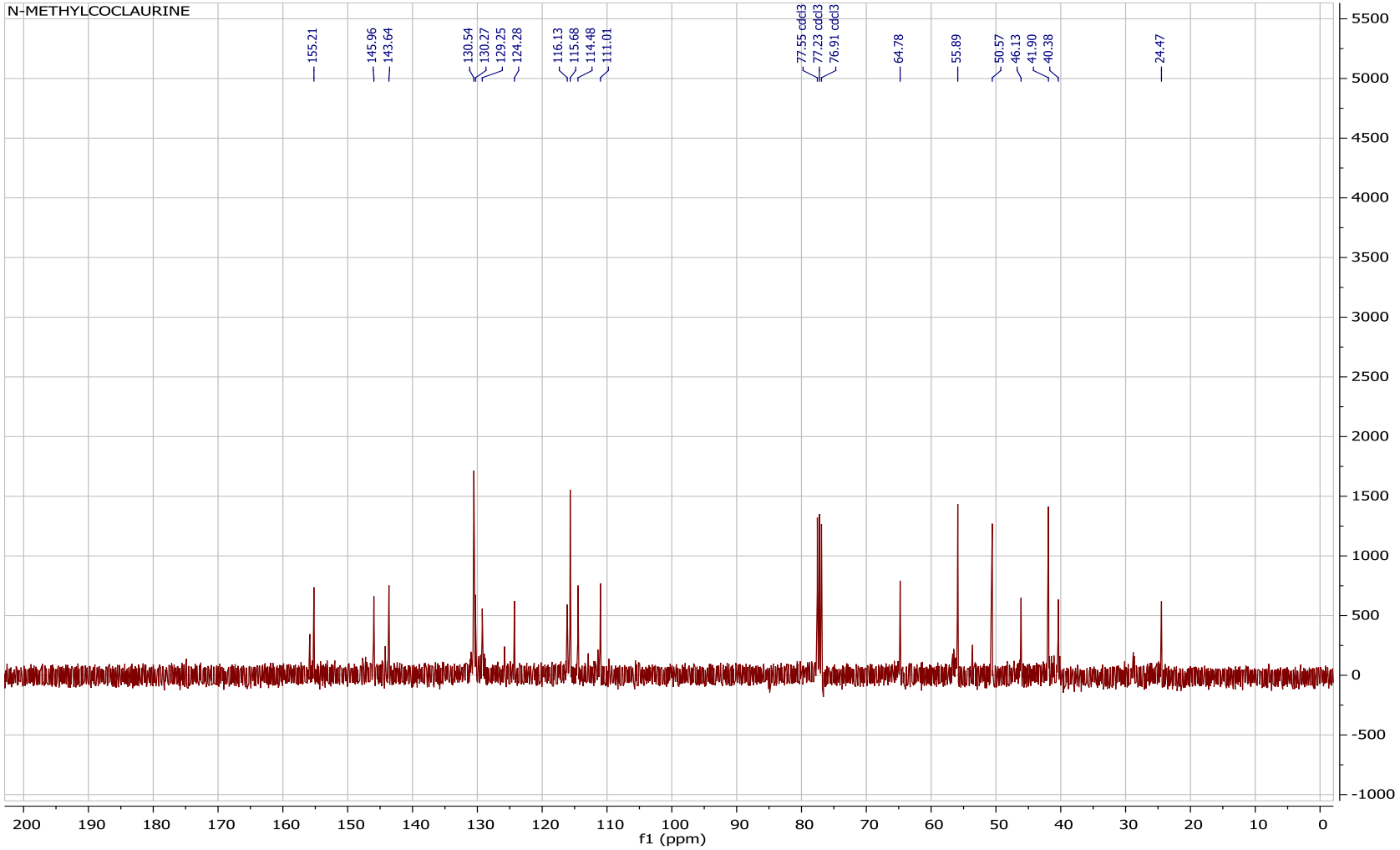


Figure 12S. ^{13}C NMR spectrum of *N*-methylcoclaurine (**6**).

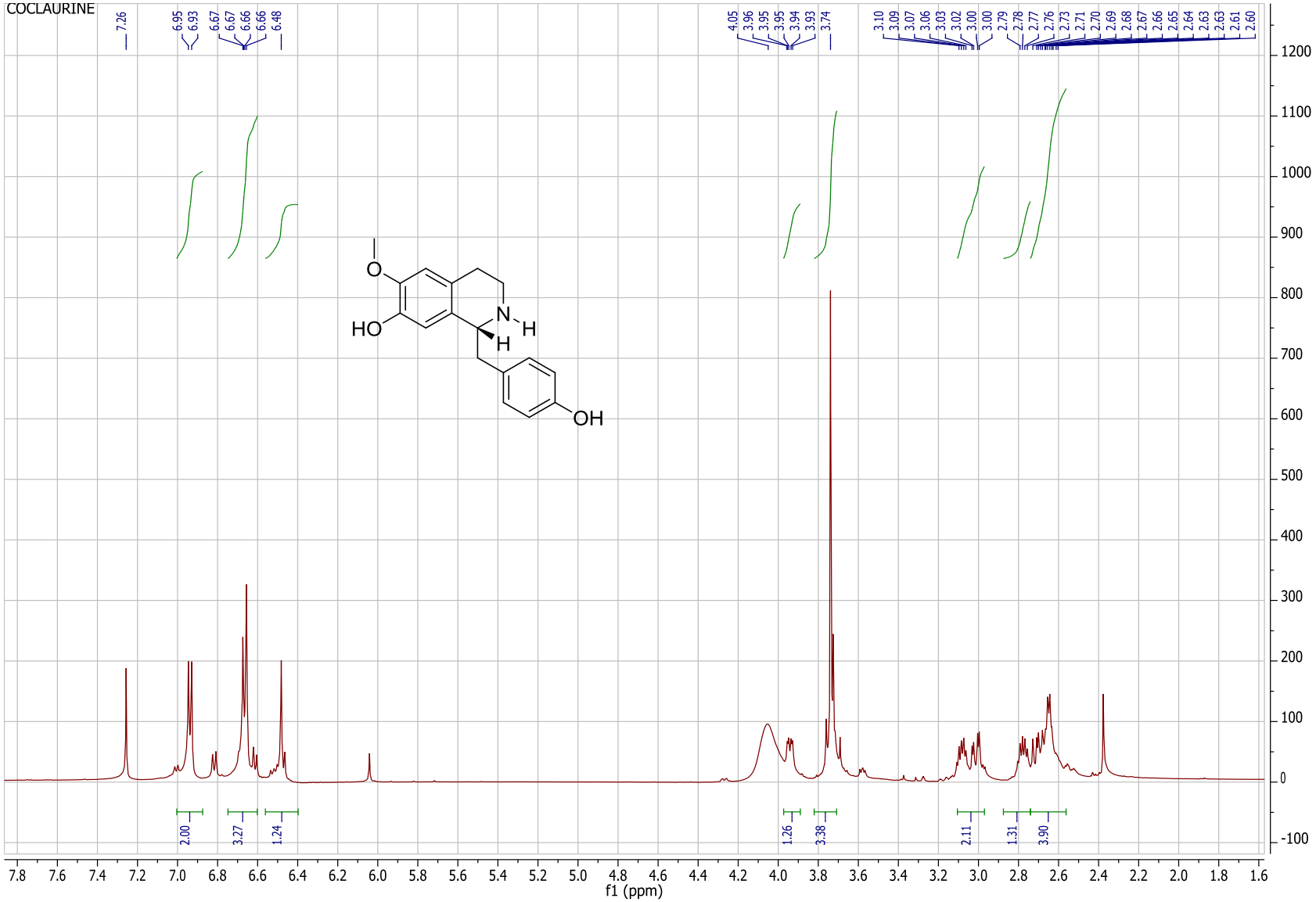


Figure 13S. ^{1}H NMR spectrum of coclaurine (**7**).

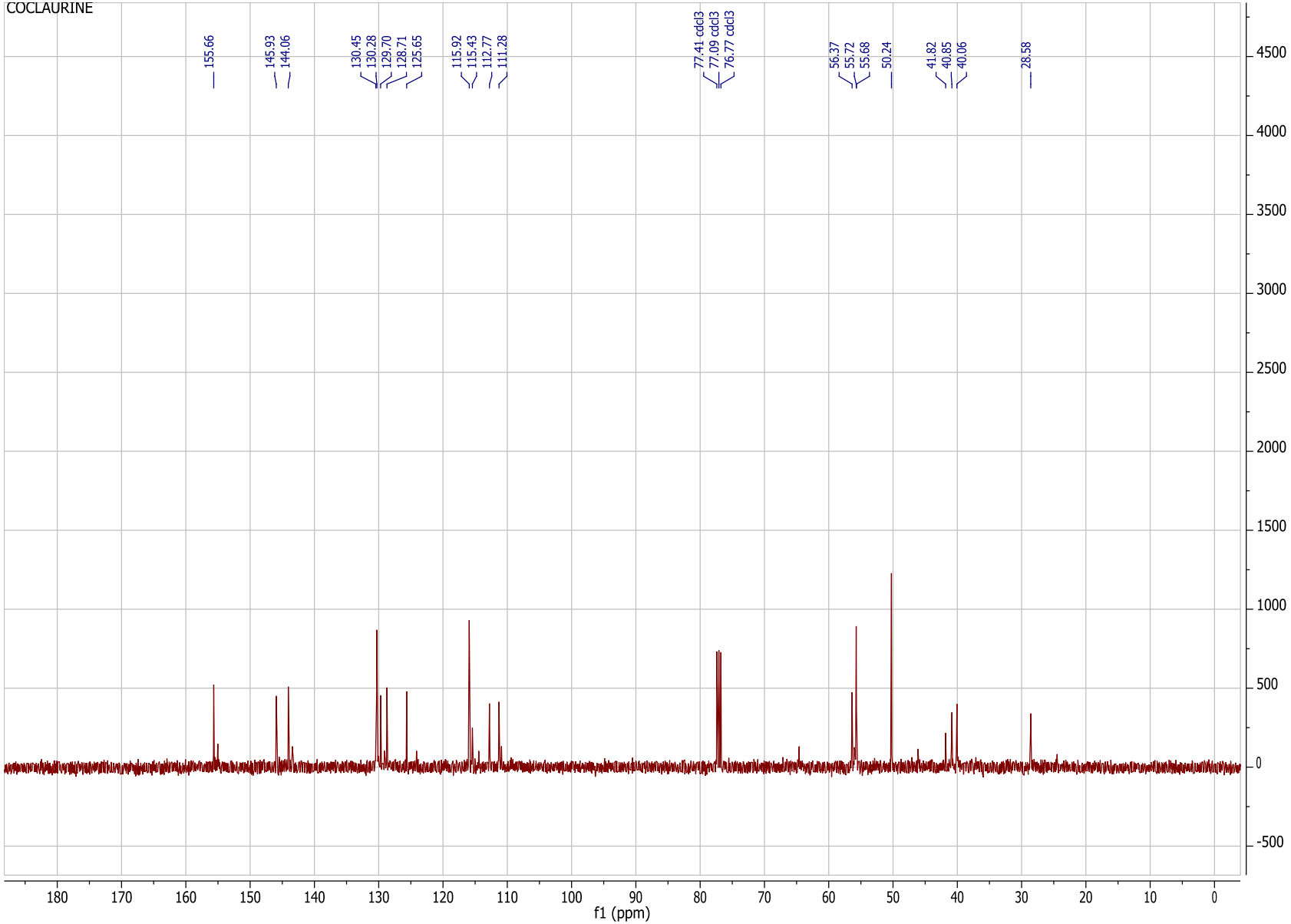


Figure 14S. ^{13}C NMR spectrum of coclaurine (**7**).

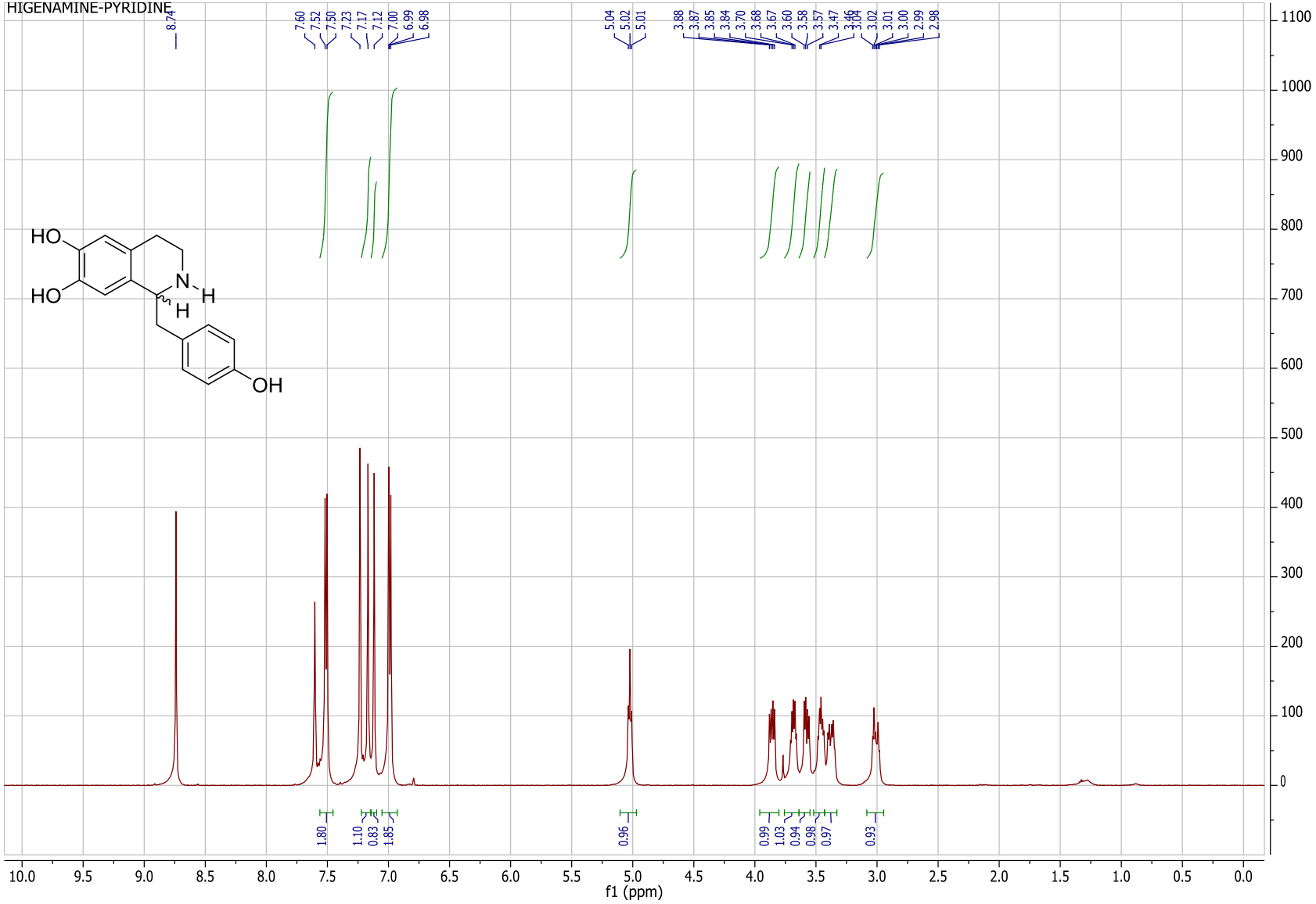


Figure 15S. ^{1}H NMR spectrum of **(±)**-higenamine (**11**).

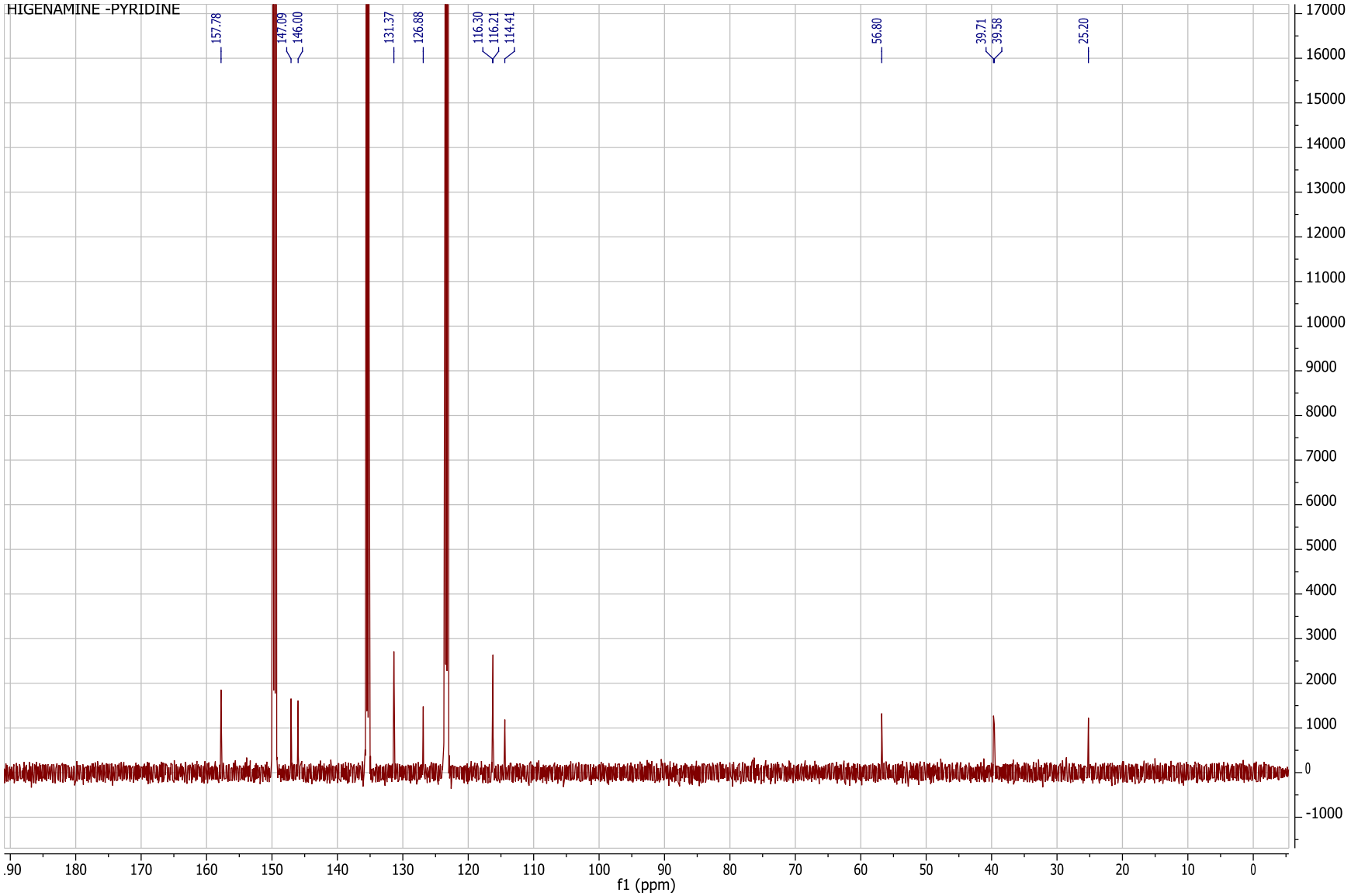


Figure 16S. ^{13}C NMR spectrum of **(±)**-higenamine (**11**).

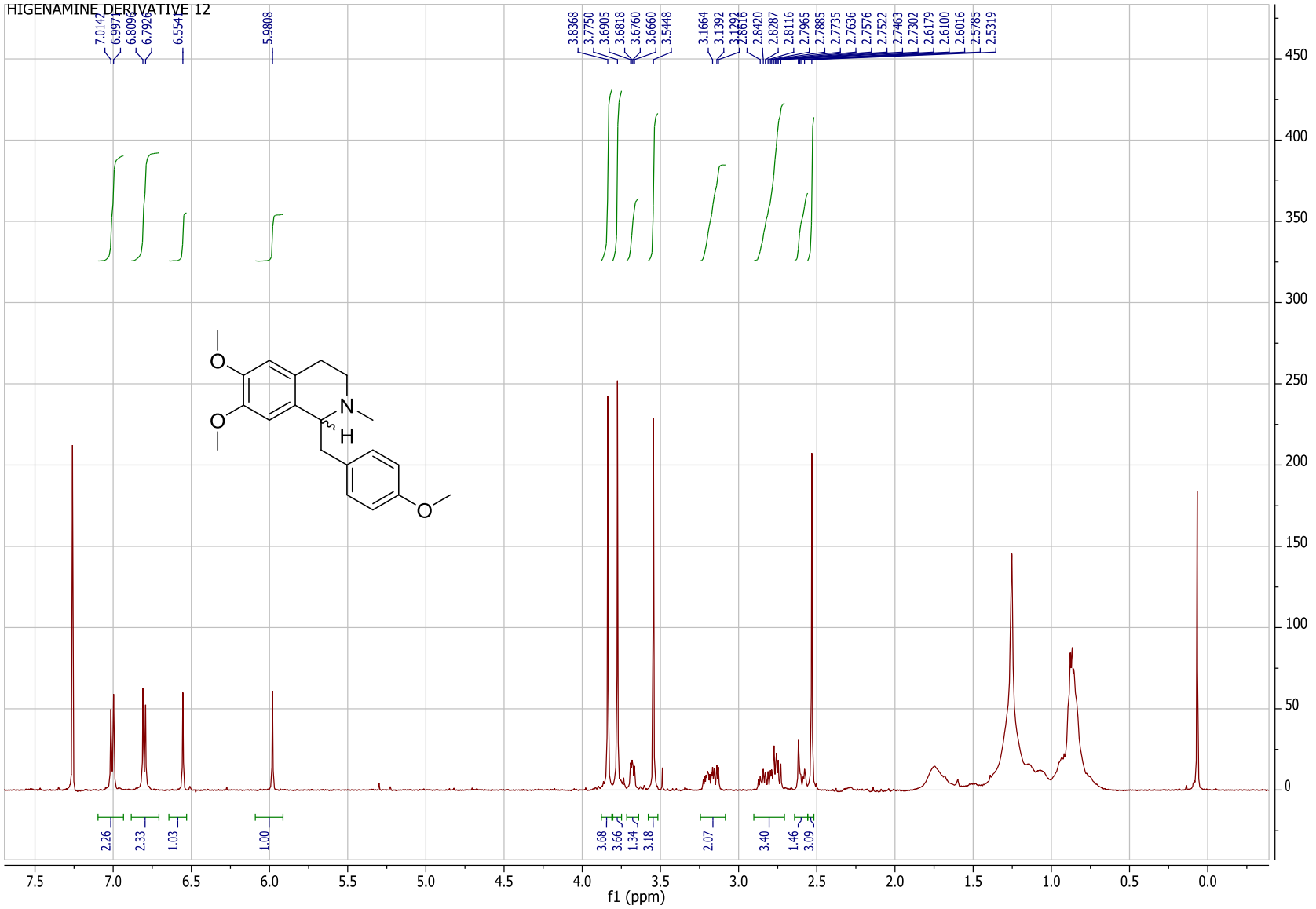


Figure 17S. [1]H NMR spectrum of higenamine derivative **12** (4´-*O*-methylarmepavine).

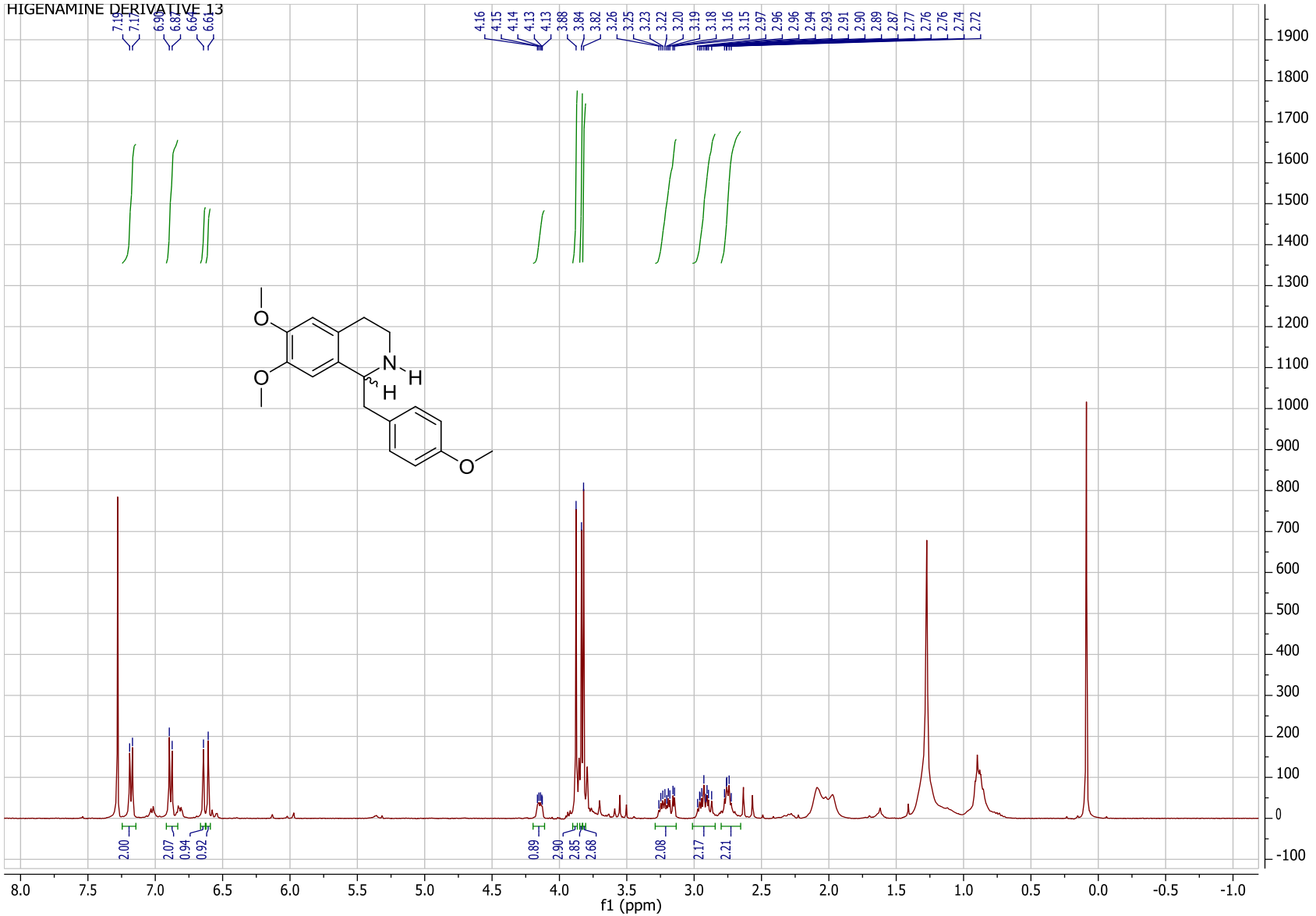


Figure 18S. ^{1}H NMR spectrum of higenamine derivative **13** (4´,7-di-*O*-methylarmepavine).

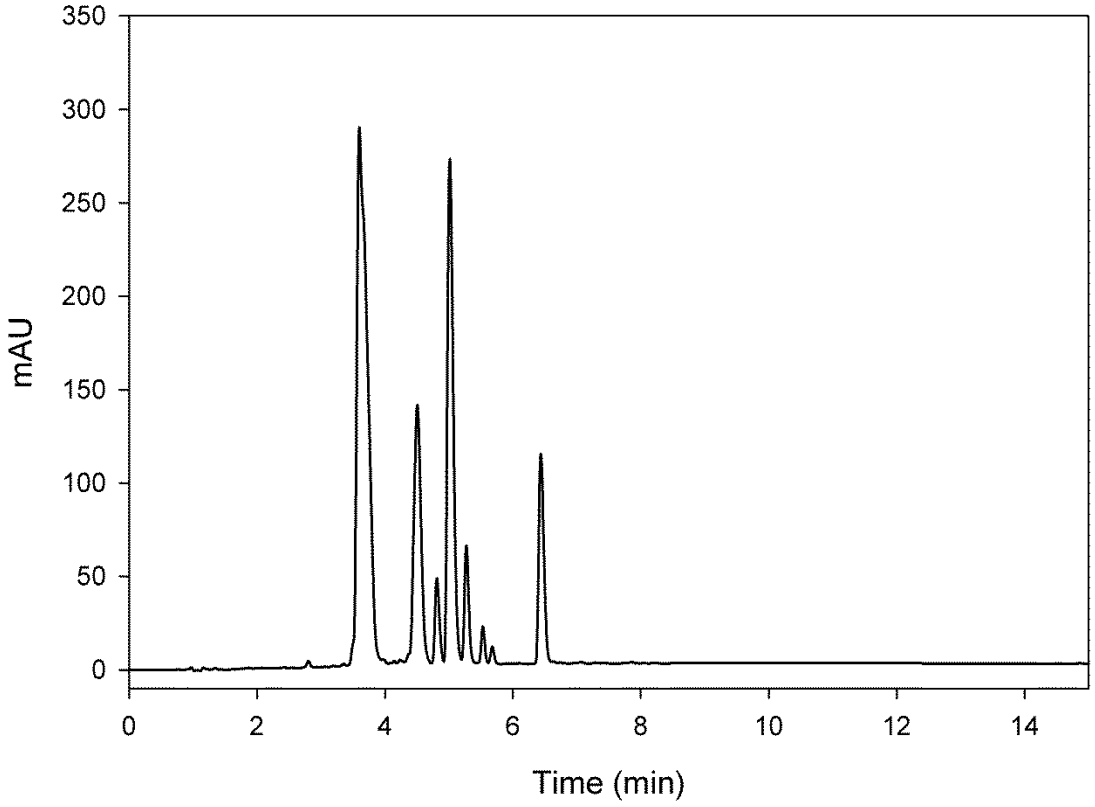


Figure 19S. UHPLC-UV (280 nm) chromatogram of basic partition of *N. nucifera* white flower.

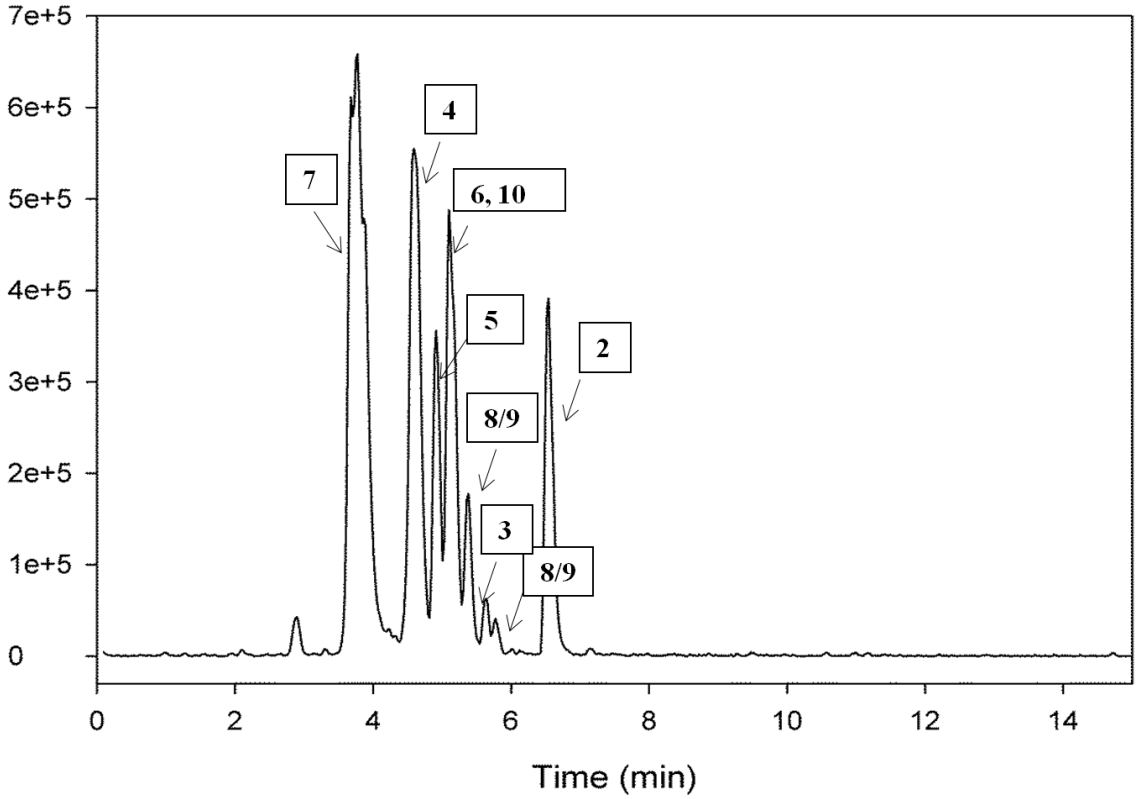


Figure 20S. UHPLC- ESI Positive chromatogram of basic partition of *N. nucifera* white flower.

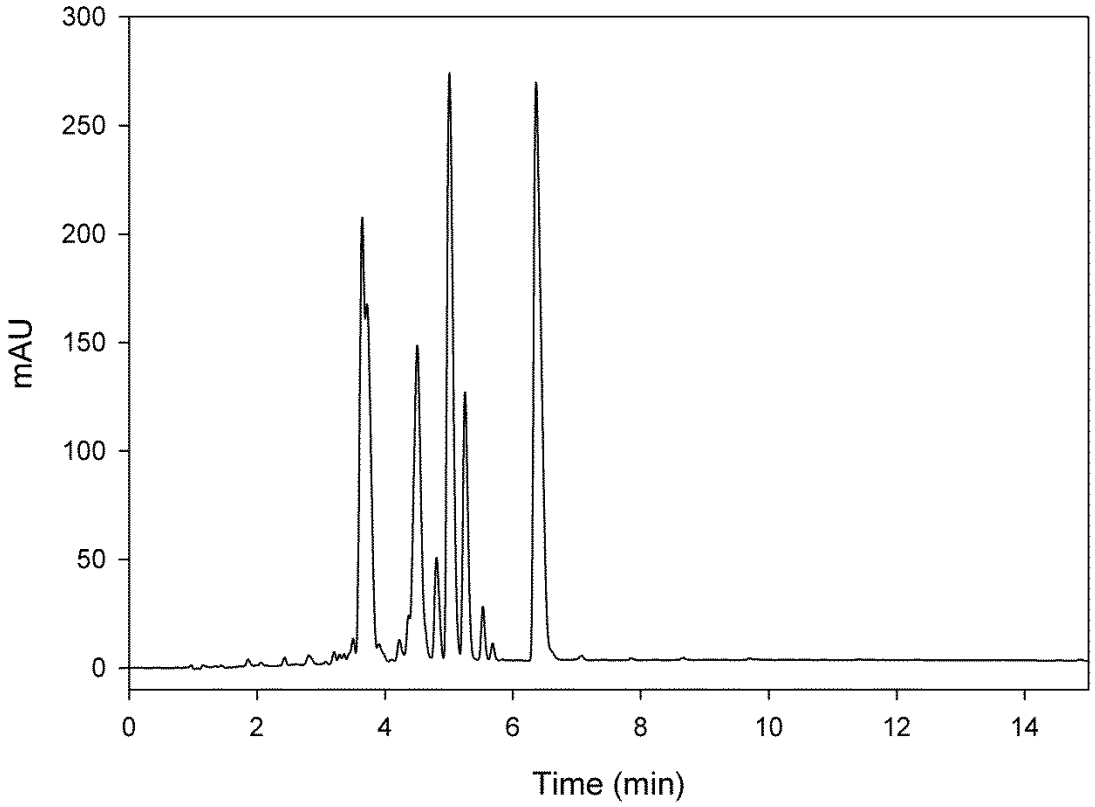


Figure 21S. UHPLC-UV (280 nm) chromatogram of basic partition of *N. nucifera* pink flower.

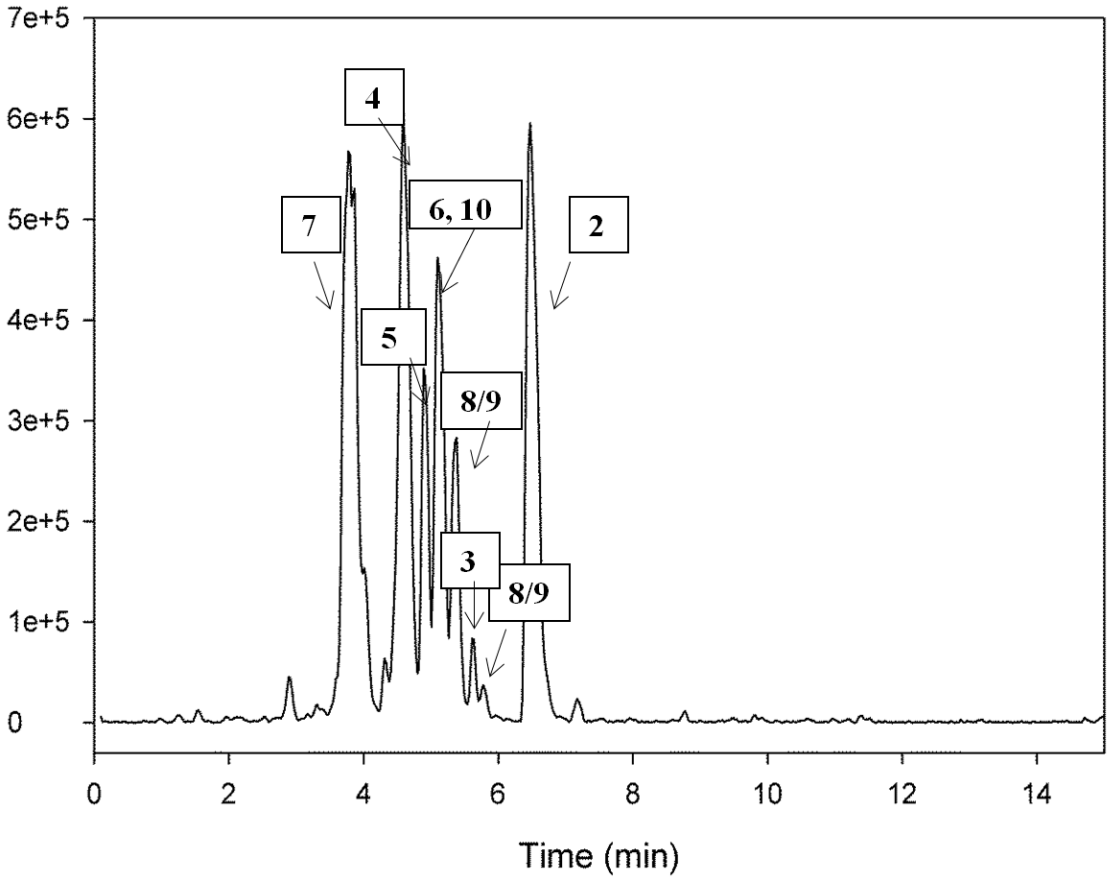


Figure 22S. UHPLC- ESI Positive chromatogram of basic partition of *N. nucifera* pink flower.

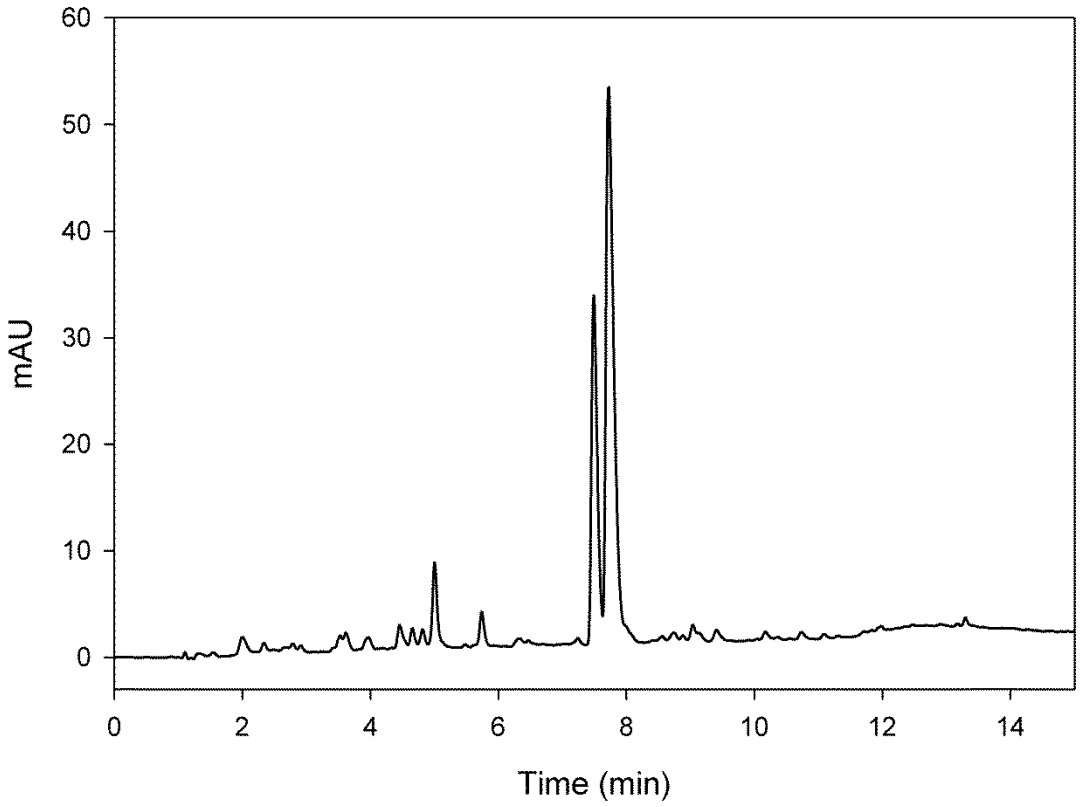


Figure 23S. UHPLC-UV (280 nm) chromatogram of acidic partition of *N. nucifera* white flower.

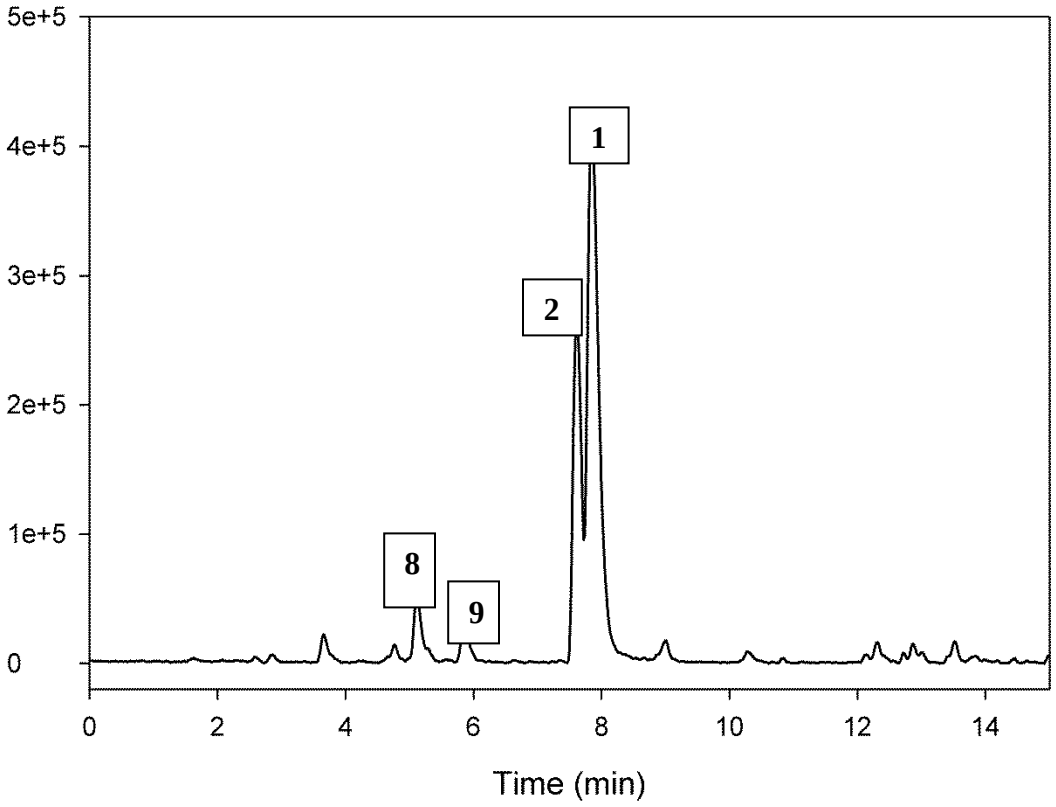


Figure 24S. UHPLC- ESI Positive chromatogram of acidic partition of *N. nucifera* white flower.

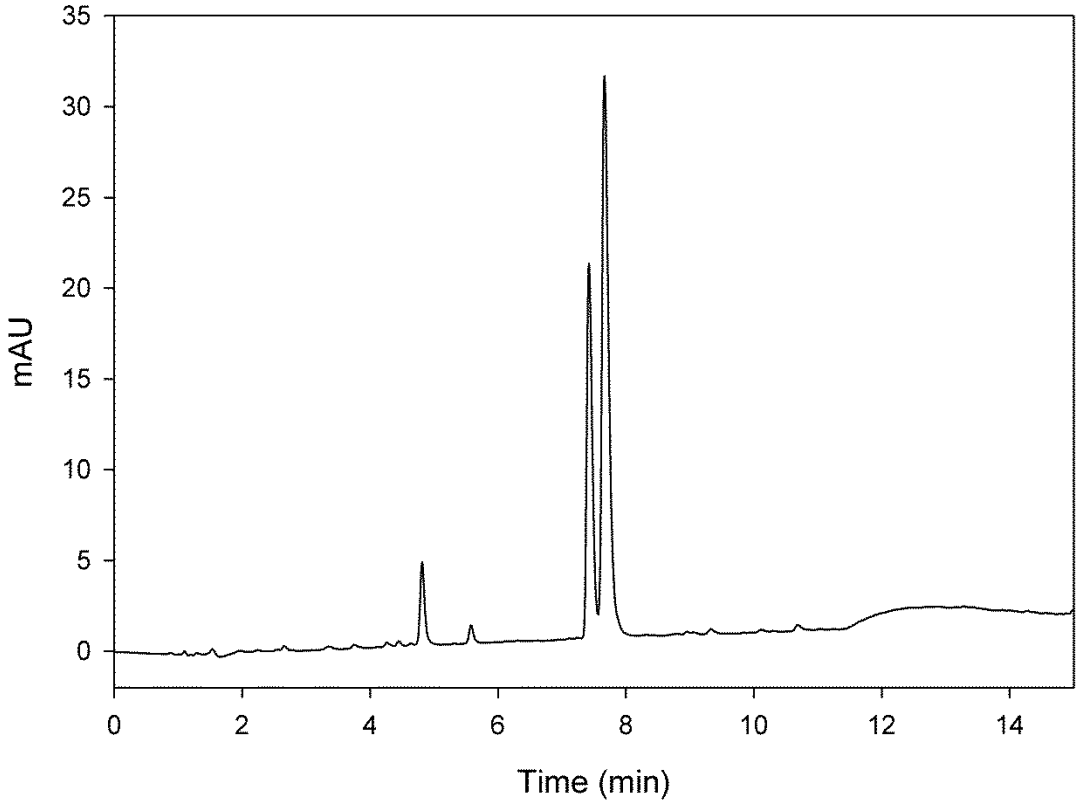


Figure 25S. UHPLC-UV (280 nm) chromatogram of acidic partition of *N. nucifera* pink flower.

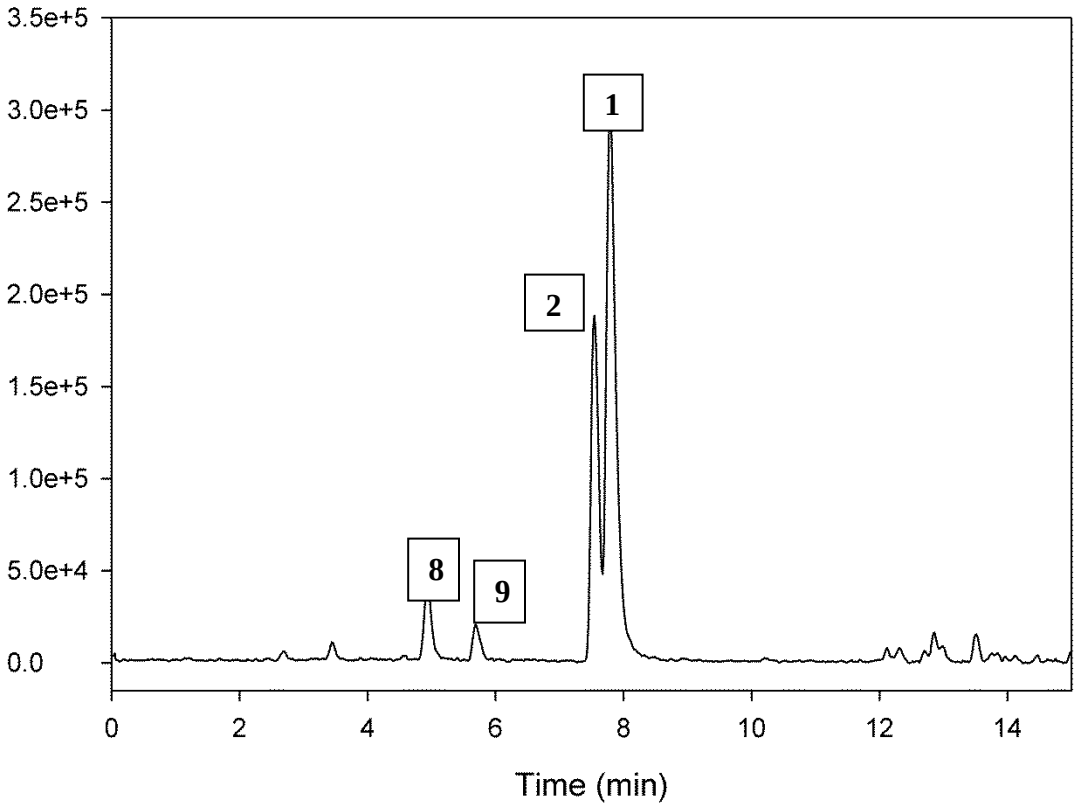


Figure 26S. UHPLC- ESI Positive chromatogram of acidic partition of *N. nucifera* pink flower.

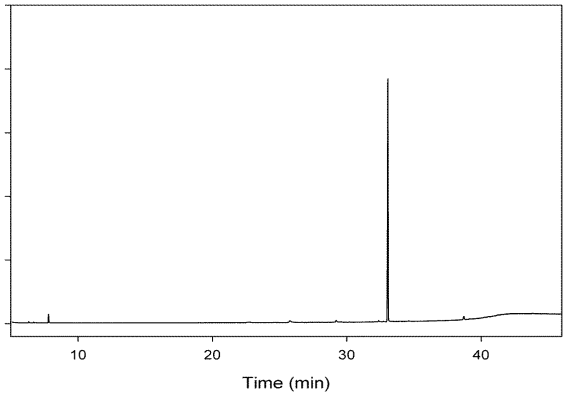


Figure 27S. GC/MS analysis of palmitic acid Me ester (Std)

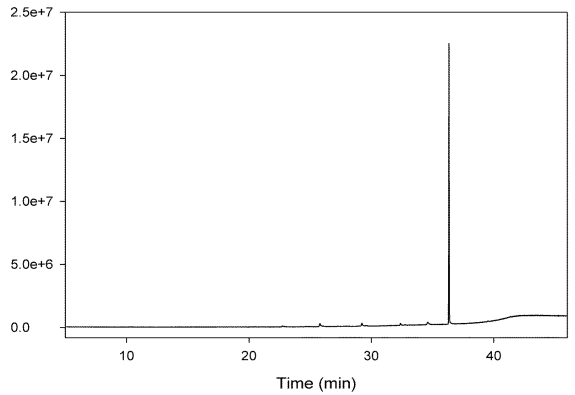


Figure 28S. GC/MS analysis of linoleic acid Me ester (Std)

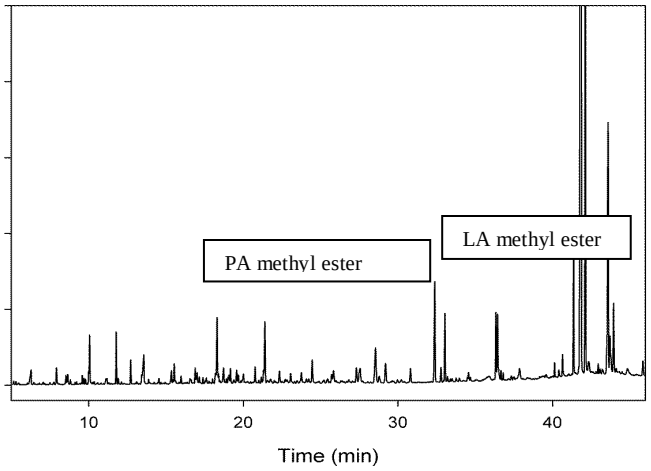


Figure 29S. GC/MS analysis of acidic patition (white flower)

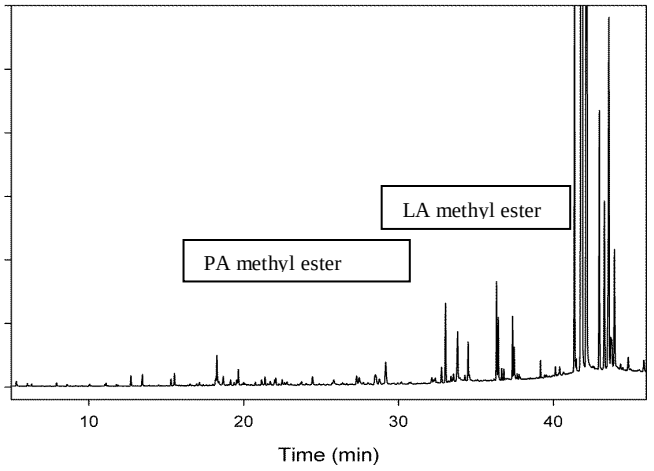


Figure 30S. GC/MS analysis of acidic patition (pink flower)

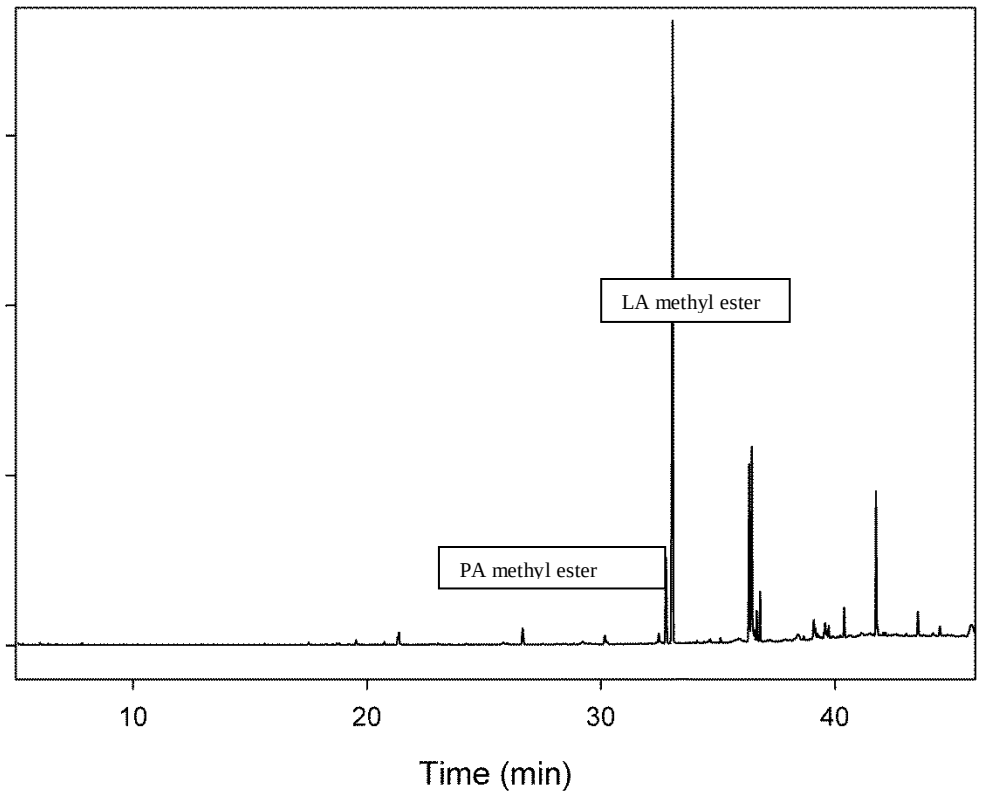


Figure 31S. GC/MS analysis of fraction G.

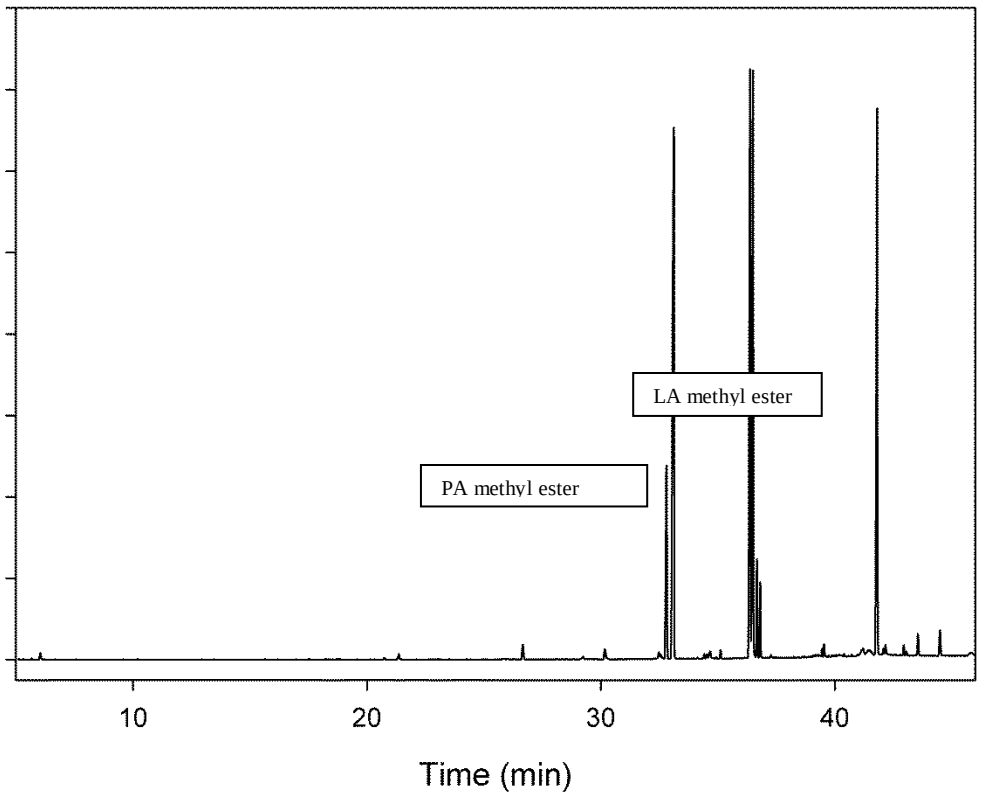


Figure 32S. GC/MS analysis of fraction H.

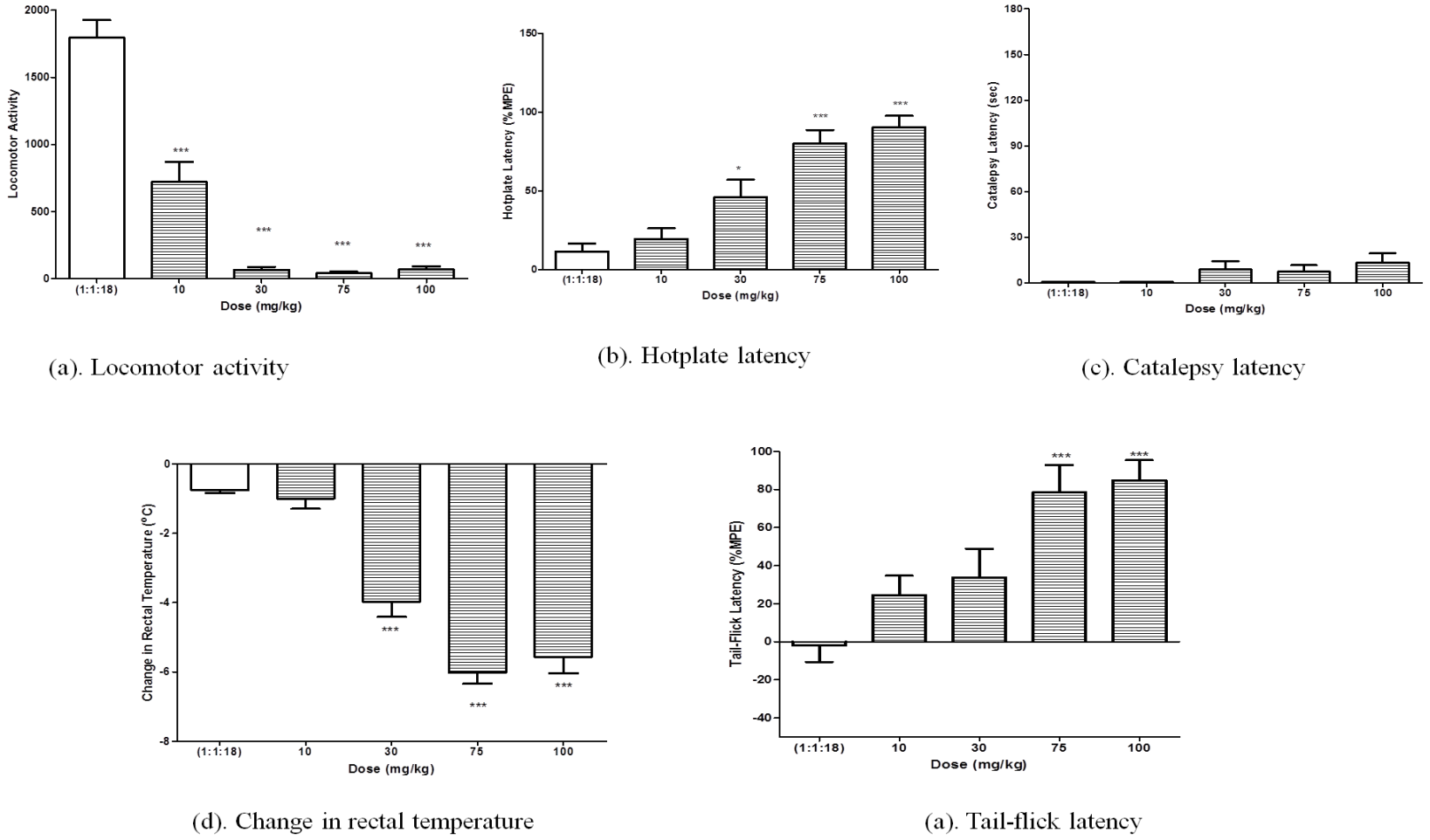
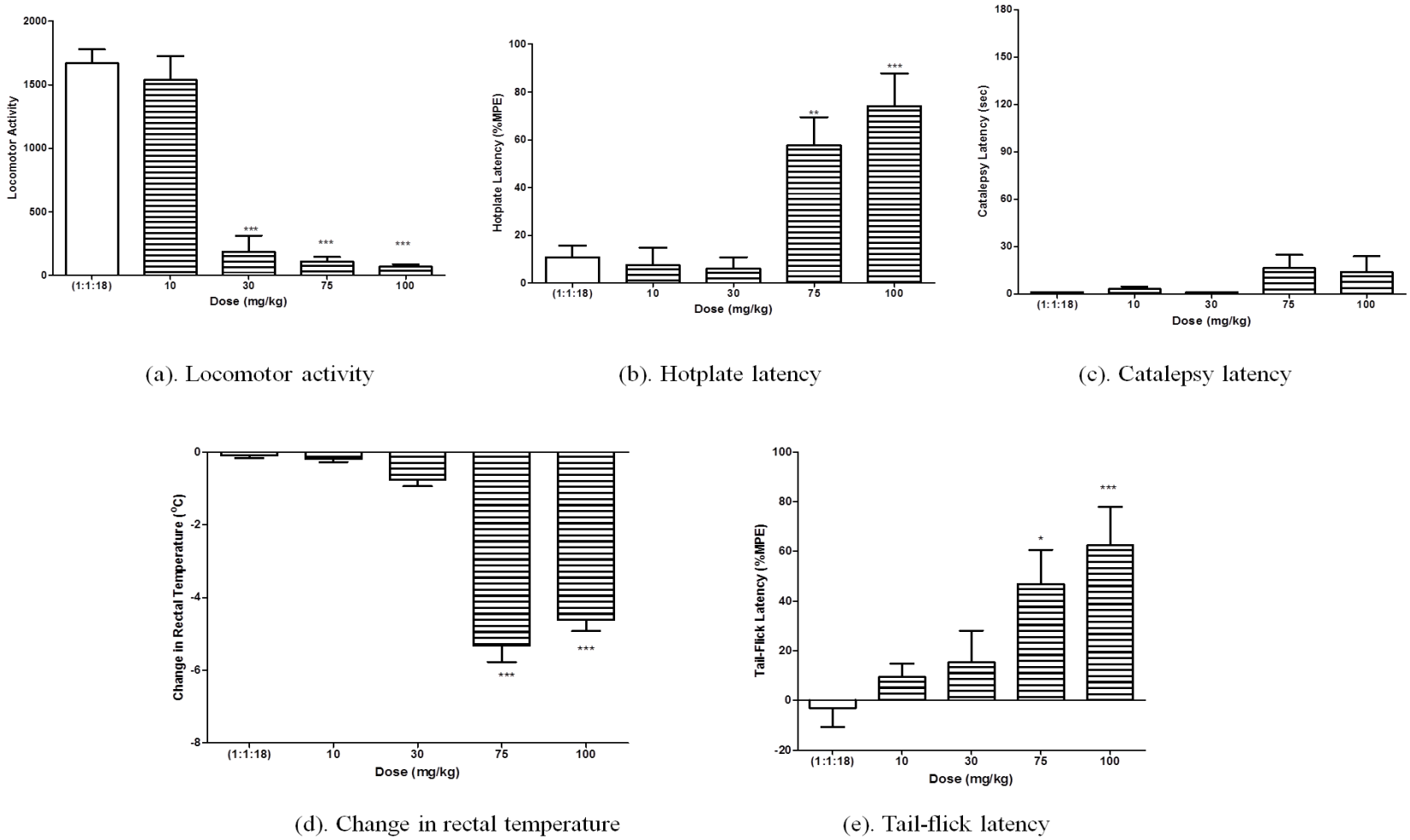


Figure 33S. *In vivo* mouse tetrad assay of acidic partition of *N. nucifera*.



(a). Locomotor activity

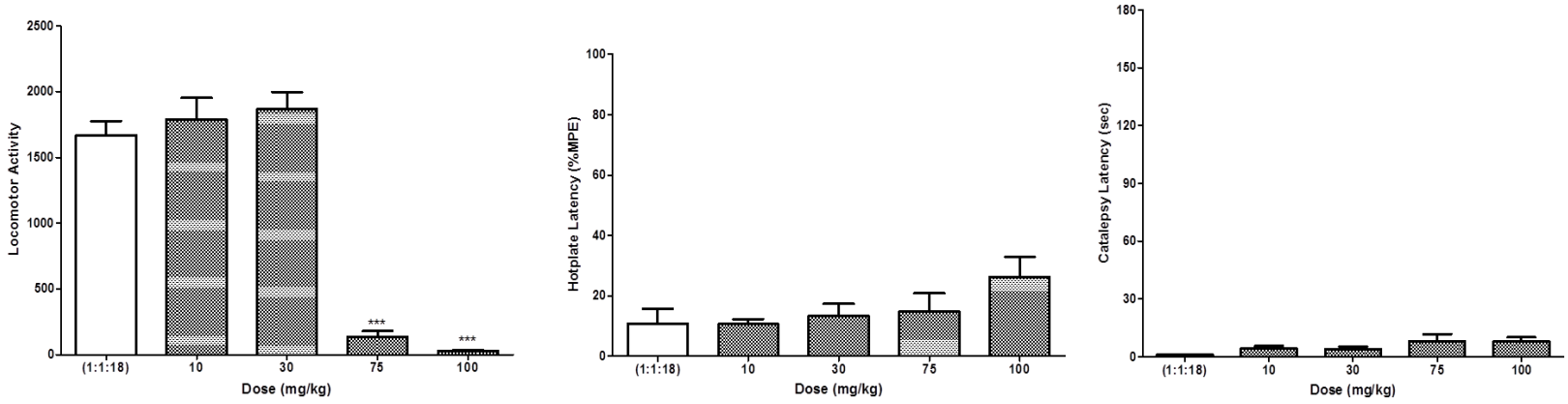
(b). Hotplate latency

(c). Catalepsy latency

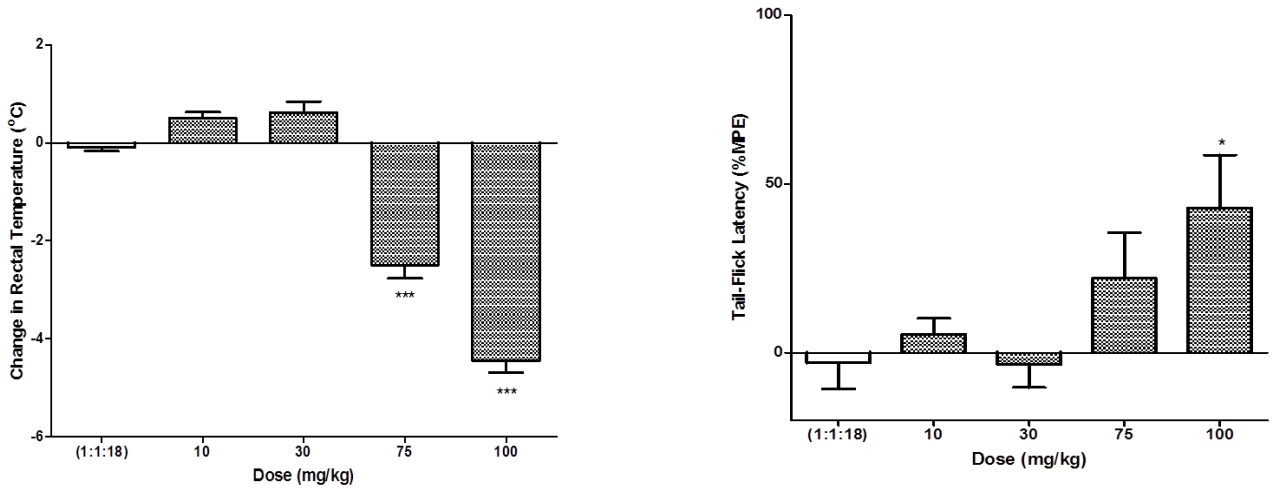
(d). Change in rectal temperature

(e). Tail-flick latency

Figure 34S. *In vivo* mouse tetrad assay of basic partition of *N. nucifera*.

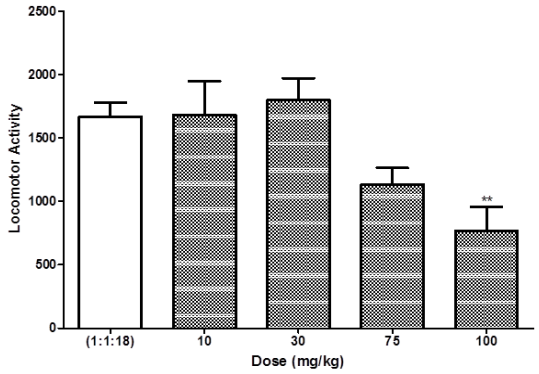


(a). Locomotor activity (b). Hotplate latency (c). Catalepsy latency

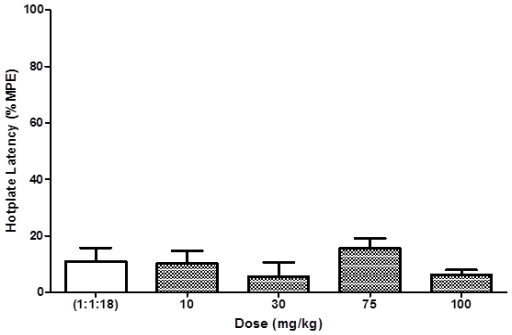


(d). Change in rectal temperature (e). Tail-flick latency

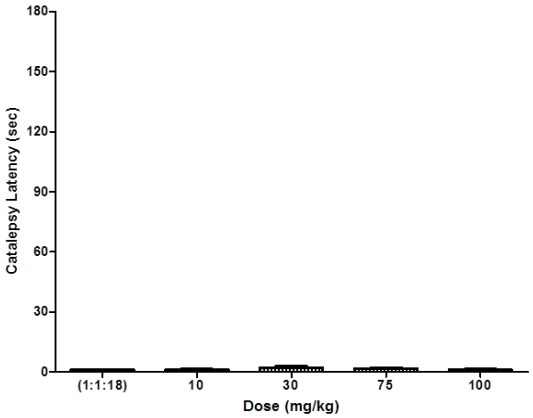
Figure 35S. *In vivo* mouse tetrad assay of mixture of compound **5-7** of *N. nucifera*.



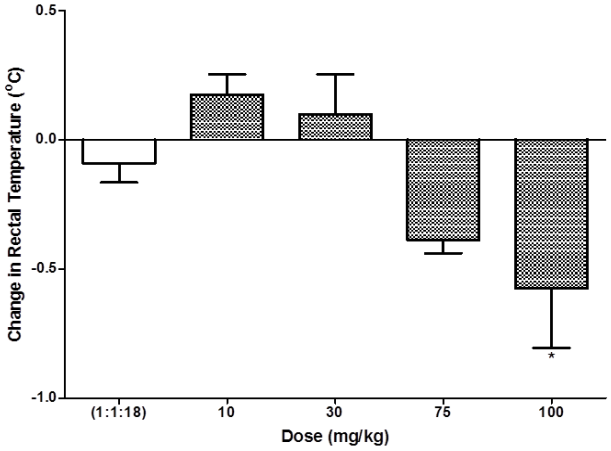
(a). Locomotor activity



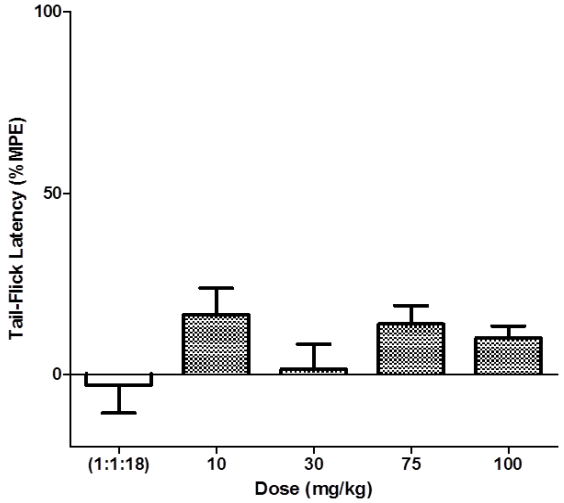
(b). Hotplate latency



(c). Catalepsy latency

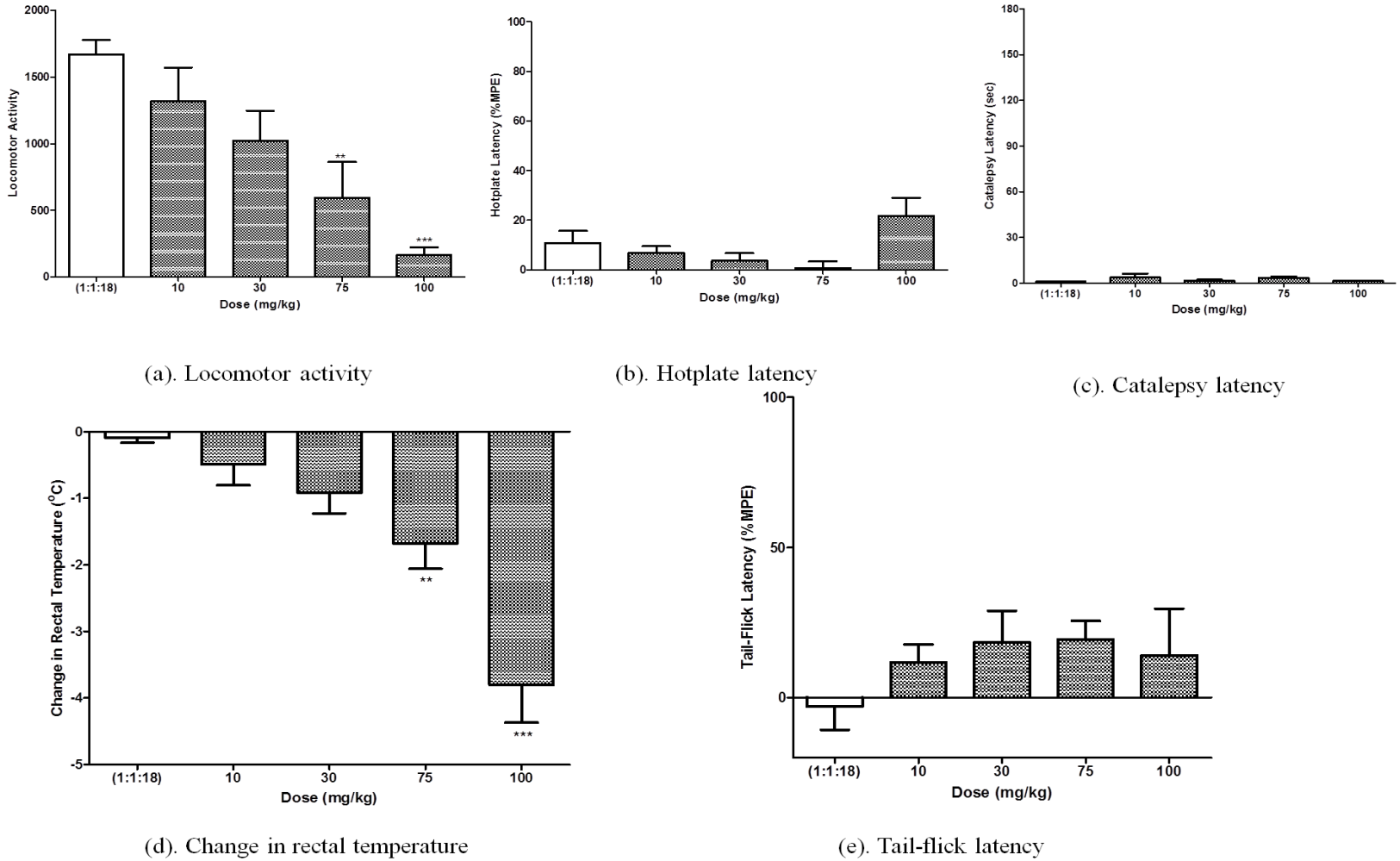


(d). Change in rectal temperature



(e). Tail-flick latency

Figure 36S. *In vivo* mouse tetrad assay of coclaurine (**7**).



(a). Locomotor activity

(b). Hotplate latency

(c). Catalepsy latency

(d). Change in rectal temperature

(e). Tail-flick latency

Figure 37S. *In vivo* mouse tetrad assay of nuciferine **(1)**.

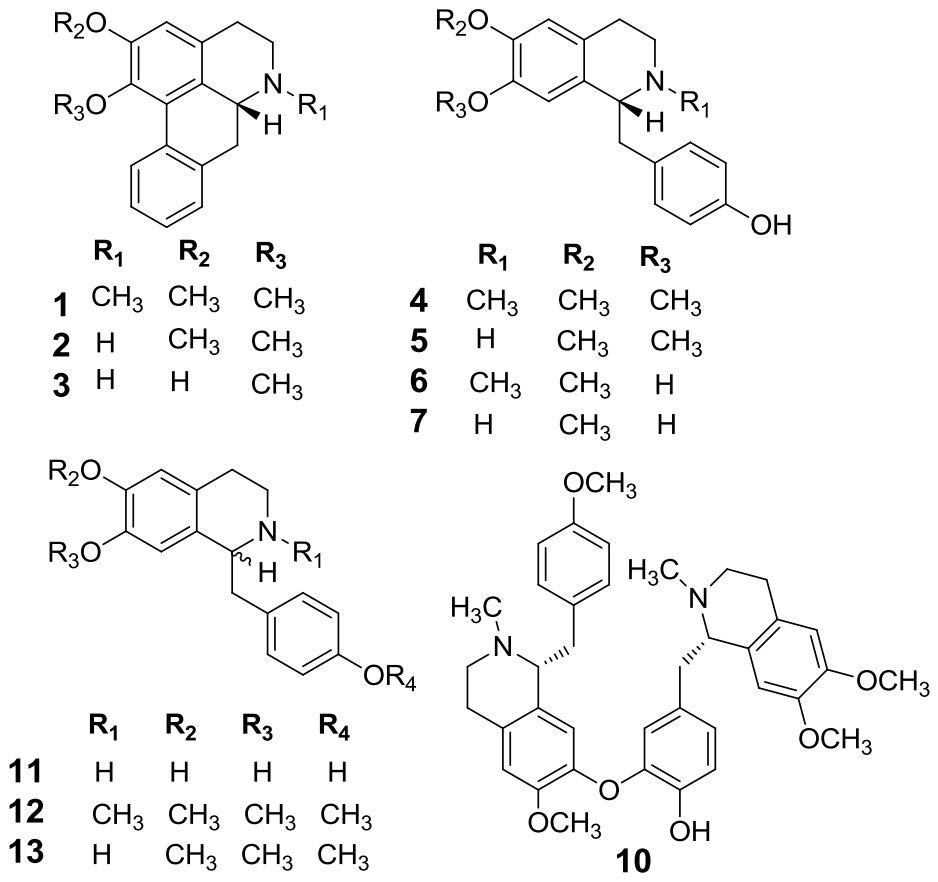


Figure 38S. Structure of alkaloids and their analogs from *N. nucifera*.