Supplementary data

1- *In vitro* phase I metabolites of copanlisib.
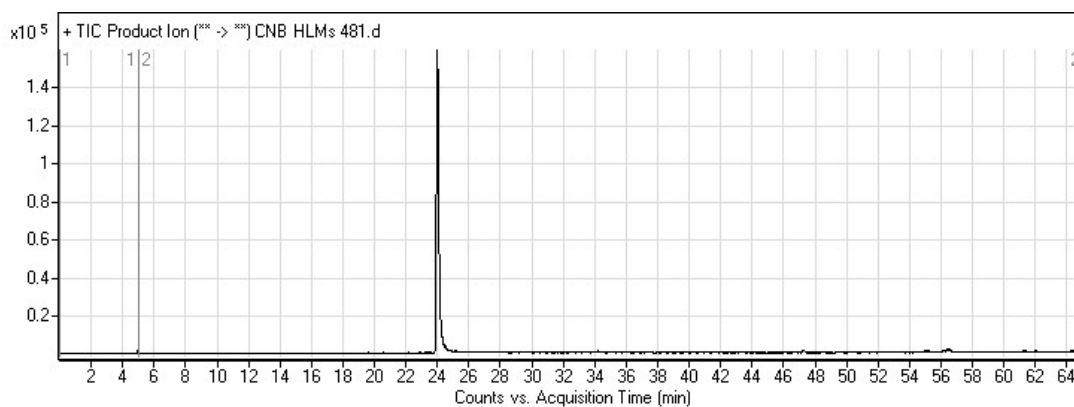

Fig. S1: PI chromatogram of PIP at *m/z* 481 showing CNB peak at 24.4 min.
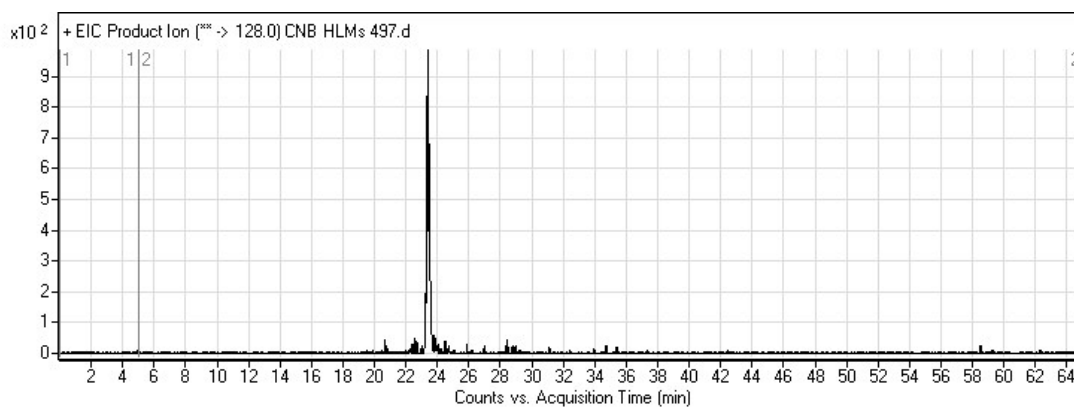

Fig. S2: PI chromatogram of CNB497a and CNB497b peaks at 23.4 min and 23.8, respectively,
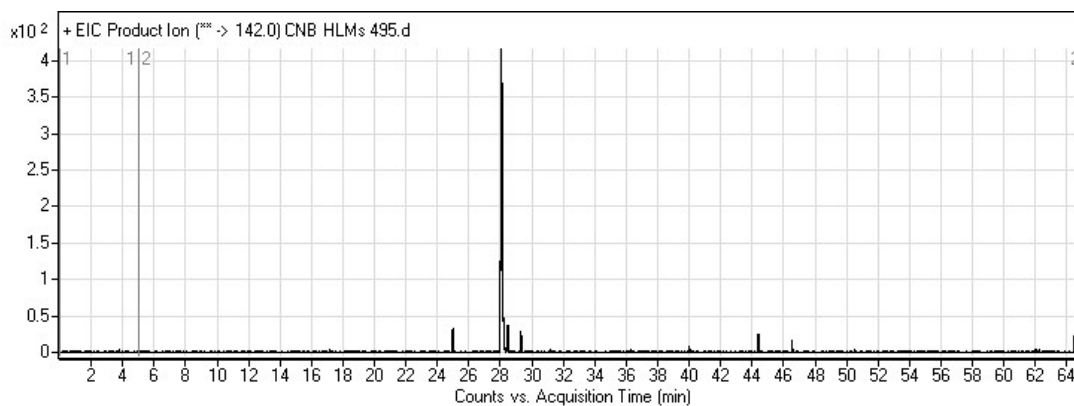

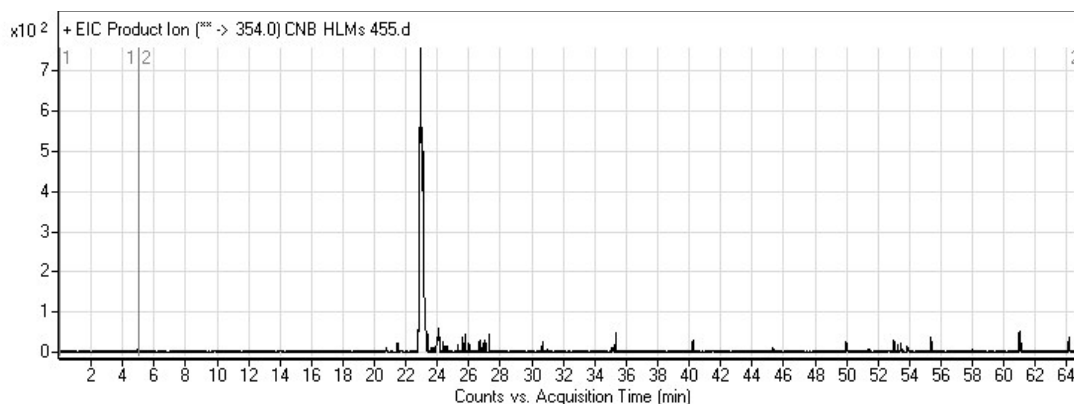**Fig. S3:** PI chromatogram of CNB495 peak at 28.0 min.

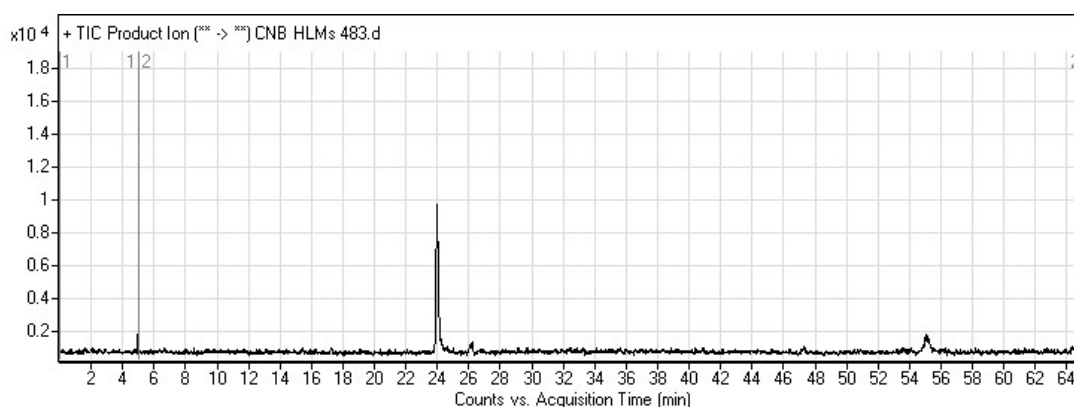**Fig. S4:** PI chromatogram of CNB455 peak at 23.0 min.

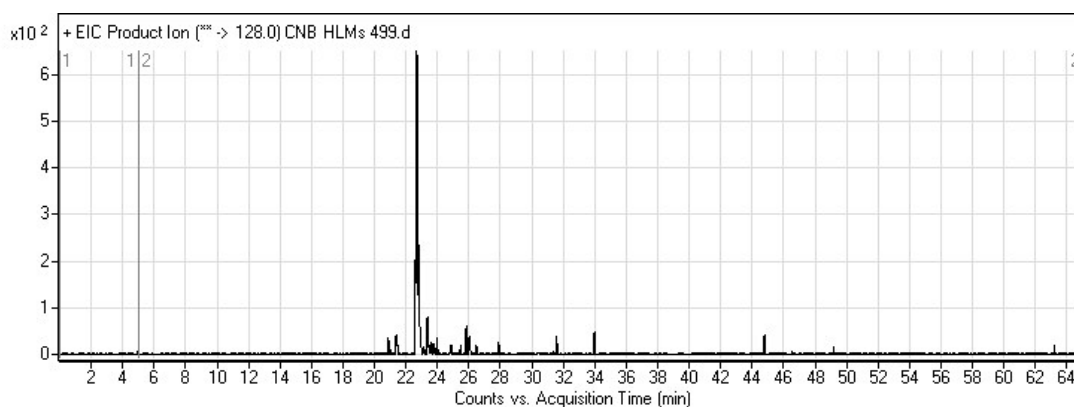**Fig. S5:** PI chromatogram of CNB483a and CNB483b peaks at 24.1 min and 26.1 min, respectively (A).

Fig. S6: PI chromatogram of PIP CNB499 peak at 22.6 min.
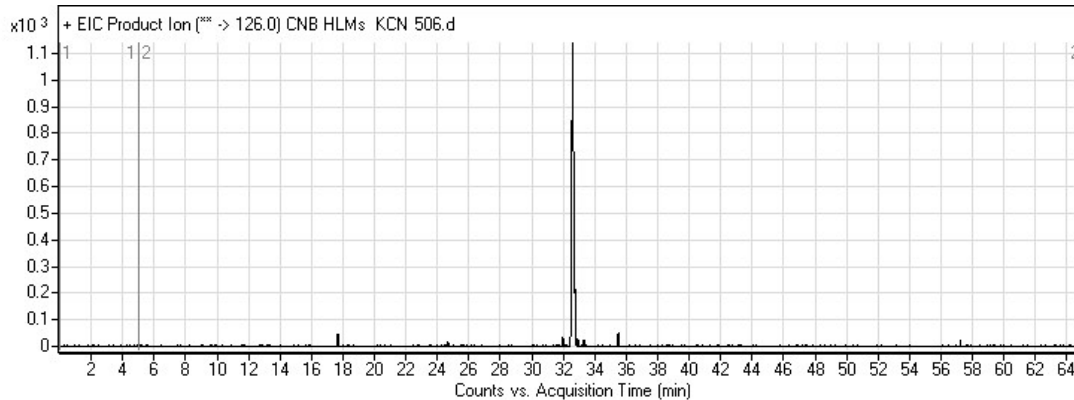
2- Reactive intermediates of copanlisib:

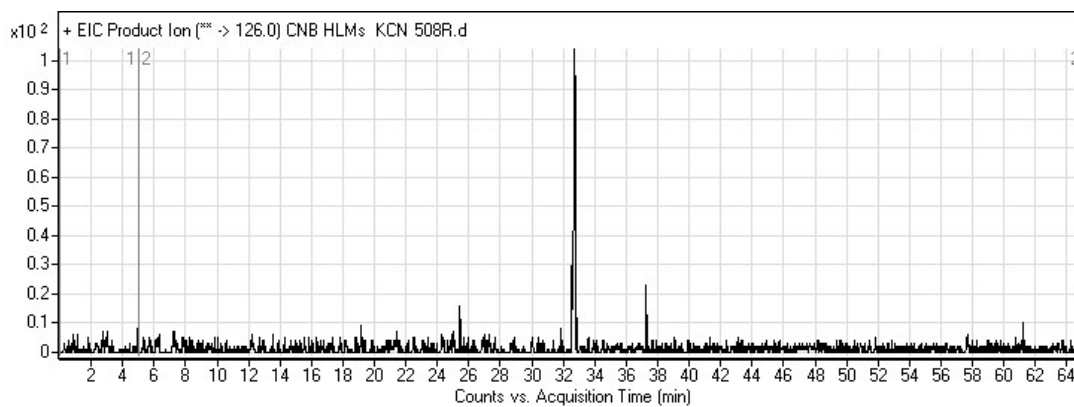**Fig. S7:** PI chromatogram of CNB506 peak at 32.6 min (A).

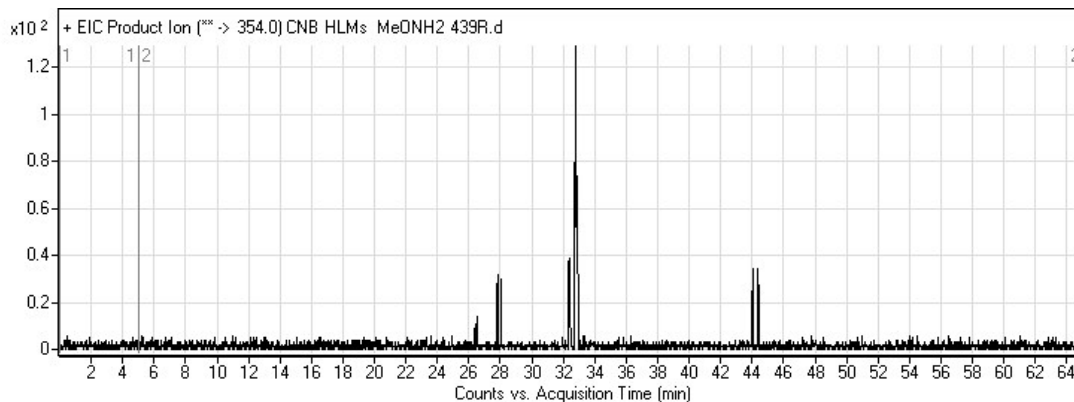**Fig. S8:** PI chromatogram of CNB508 peak at 32.7 min.
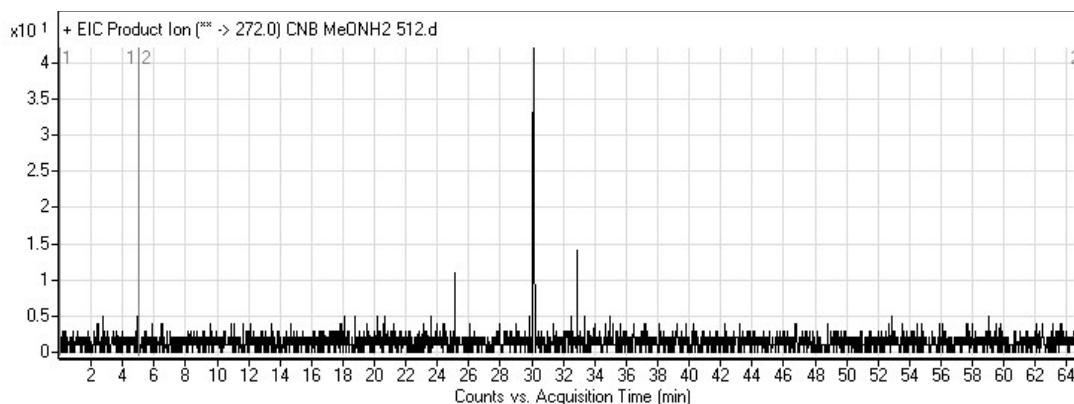

Fig. S9: PI chromatogram of CNB439 peak at 32.8 min.

Fig. S10: PI chromatogram of CNB512 peak at 30.2 min.
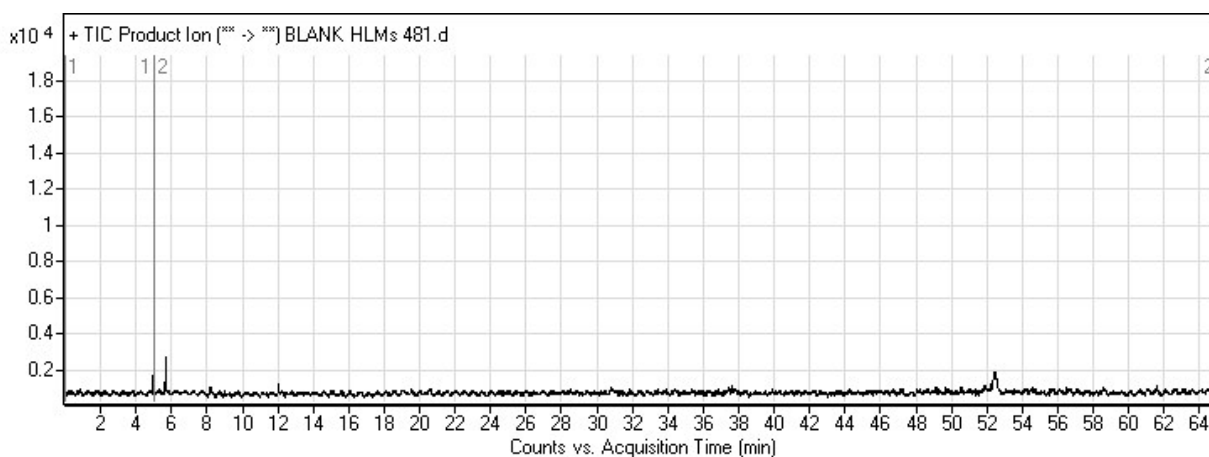
3- Control chromatograms of copanlisib.

Fig. S11: PI chromatogram of PIP at *m/z* 481 showing the absence of CNB peak at 24.4 min.
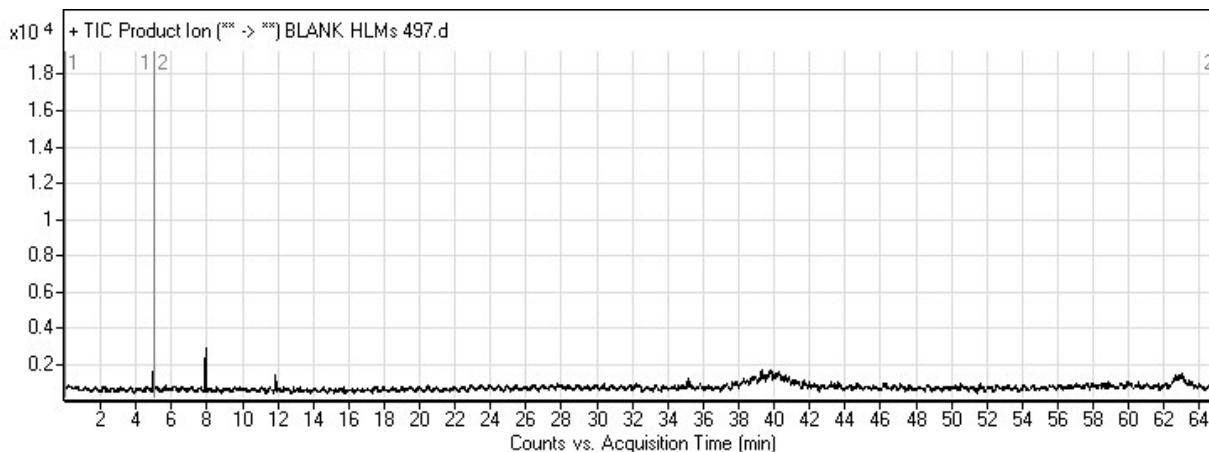

Fig. S12: PI chromatogram showing the absence of CNB497a and CNB497b peaks at 23.4 min and 23.8, respectively,
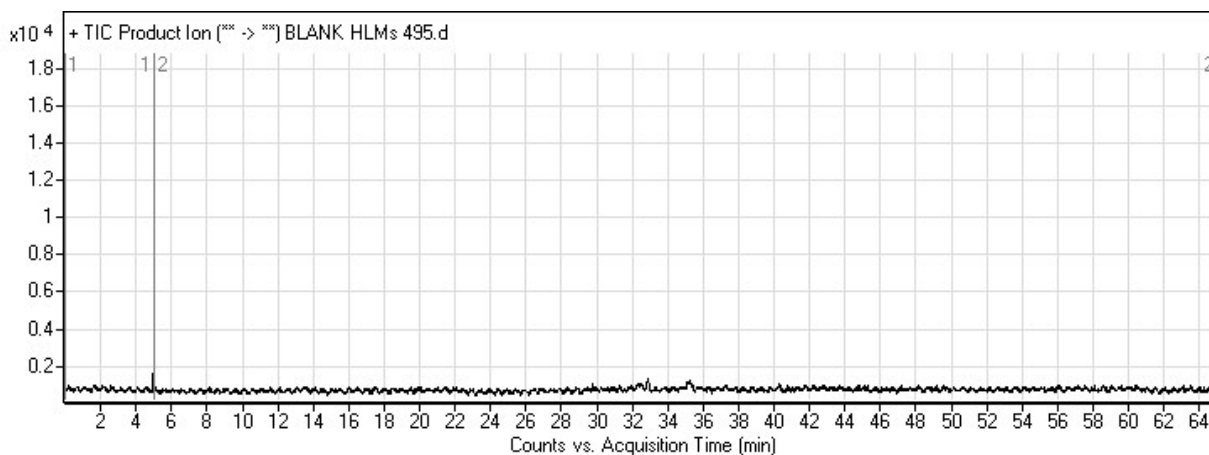
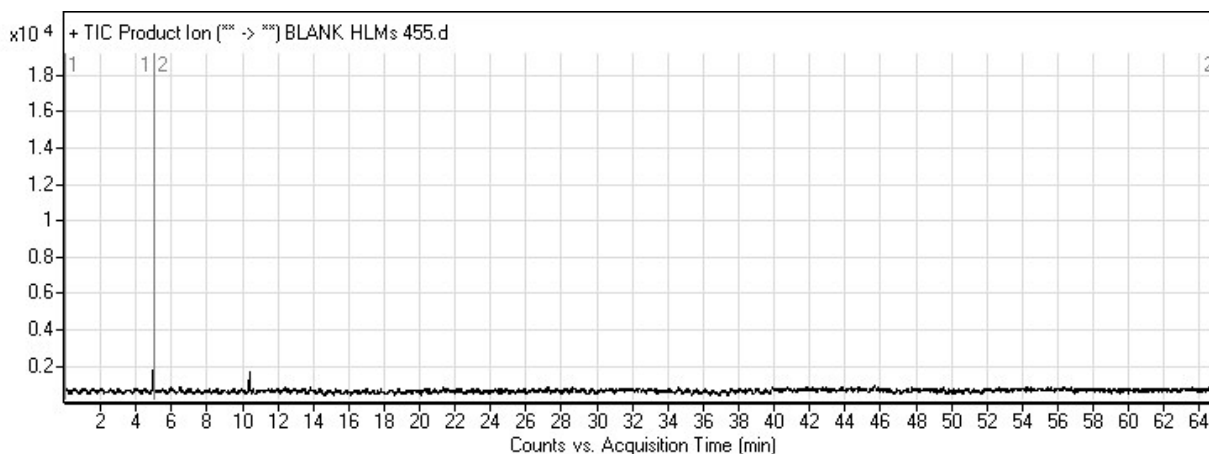**Fig. S13:** PI chromatogram showing the absence of CNB495 peak at 28.0 min.

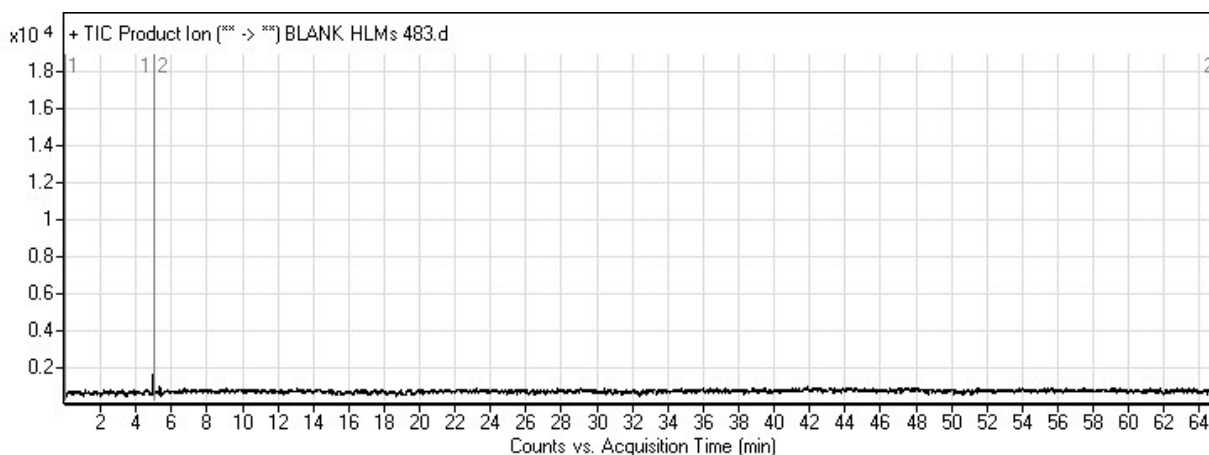**Fig. S14:** PI chromatogram showing the absence of CNB455 peak at 23.0 min.

Fig. S15: PI chromatogram showing the absence of CNB483a and CNB483b peaks at 24.1 min and 26.1 min, respectively (A).
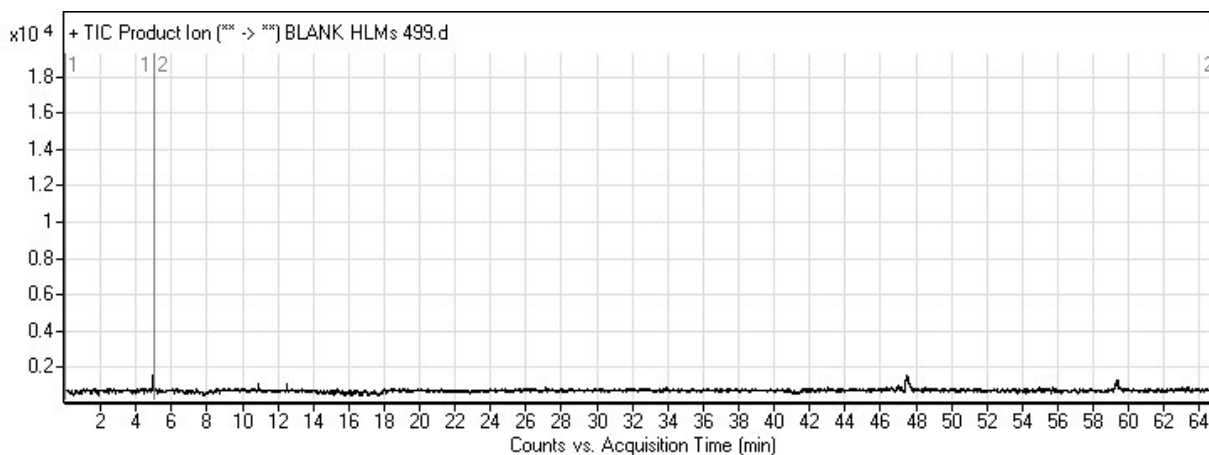
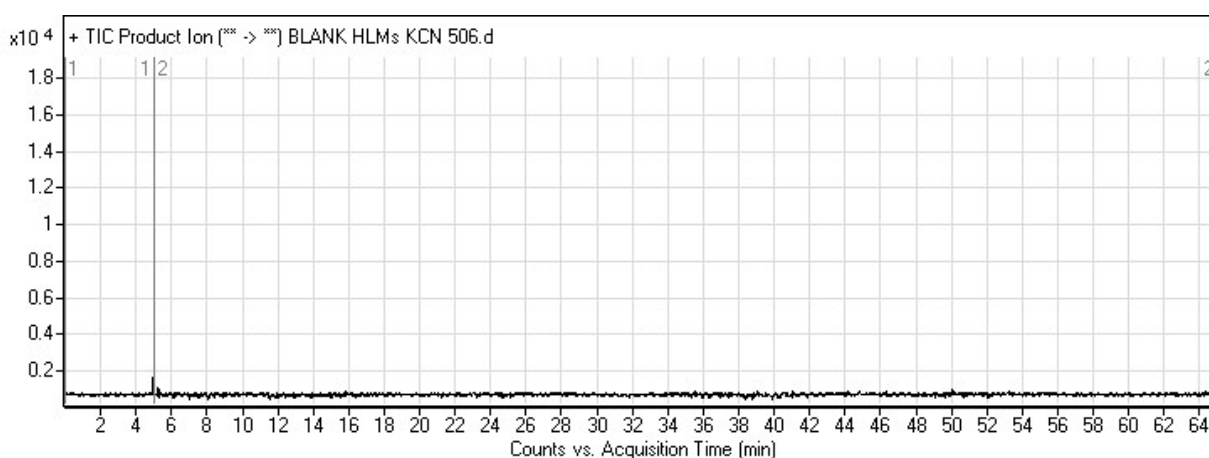**Fig. S16:** PI chromatogram showing the absence of PIP CNB499 peak at 22.6 min.

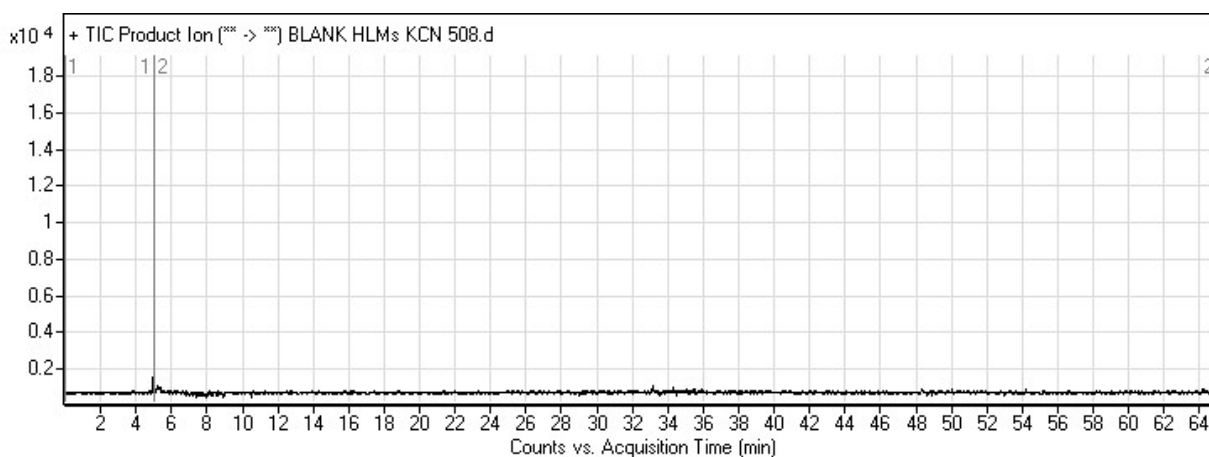**Fig. S17:** PI chromatogram showing the absence of CNB506 peak at 32.6 min (A).

Fig. S18: PI chromatogram showing the absence of CNB508 peak at 32.7 min.

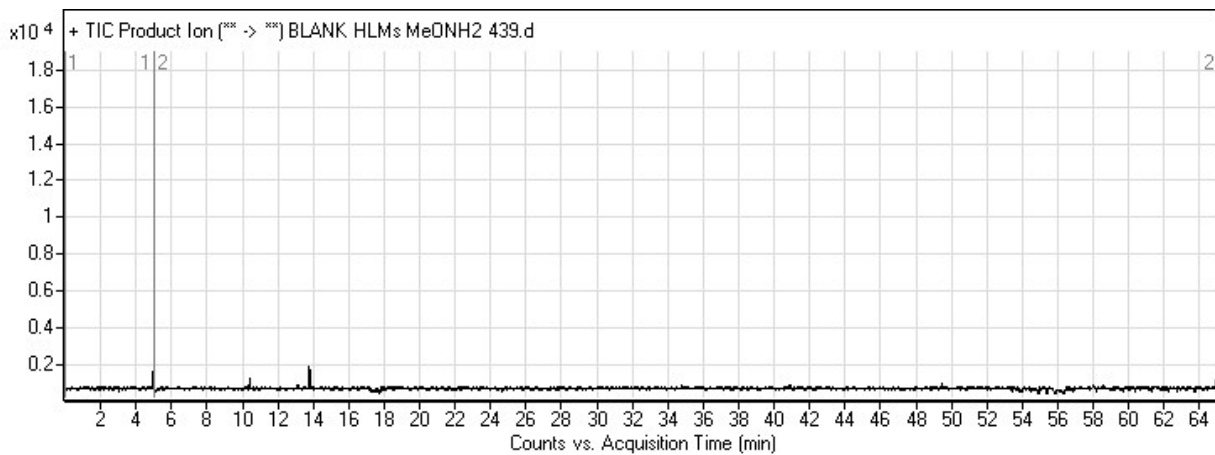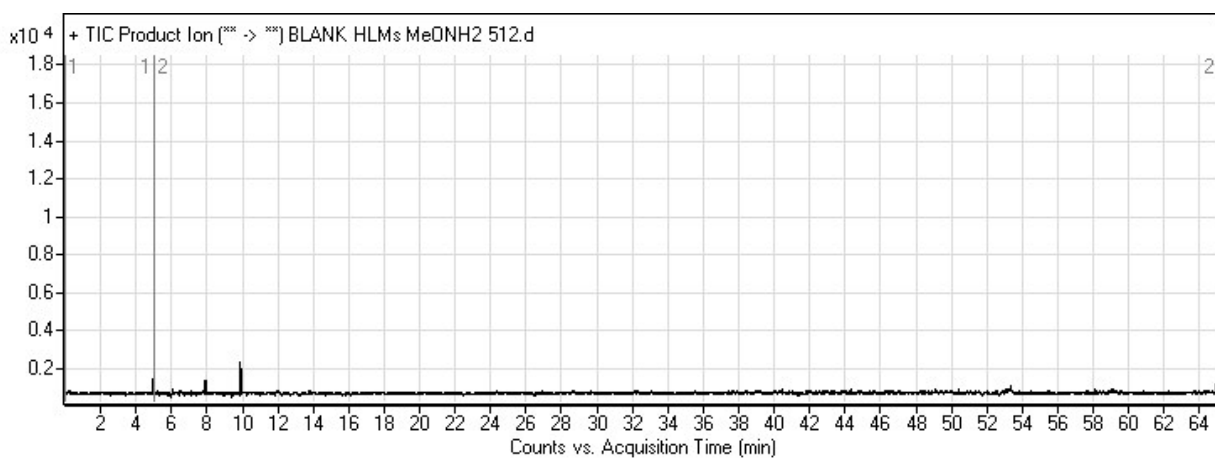**Fig. S19:** PI chromatogram showing the absence of CNB439 peak at 32.8 min.

Fig. S20: PI chromatogram showing the absence of CNB512 peak at 30.2 min.