

## Anti-leishmanial potential of *Betula utilis* D. Don ethanolic extract, isolated betulin and its ester derivative on THP-1cells against *Leishmania donovani*

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### Supplementary Material

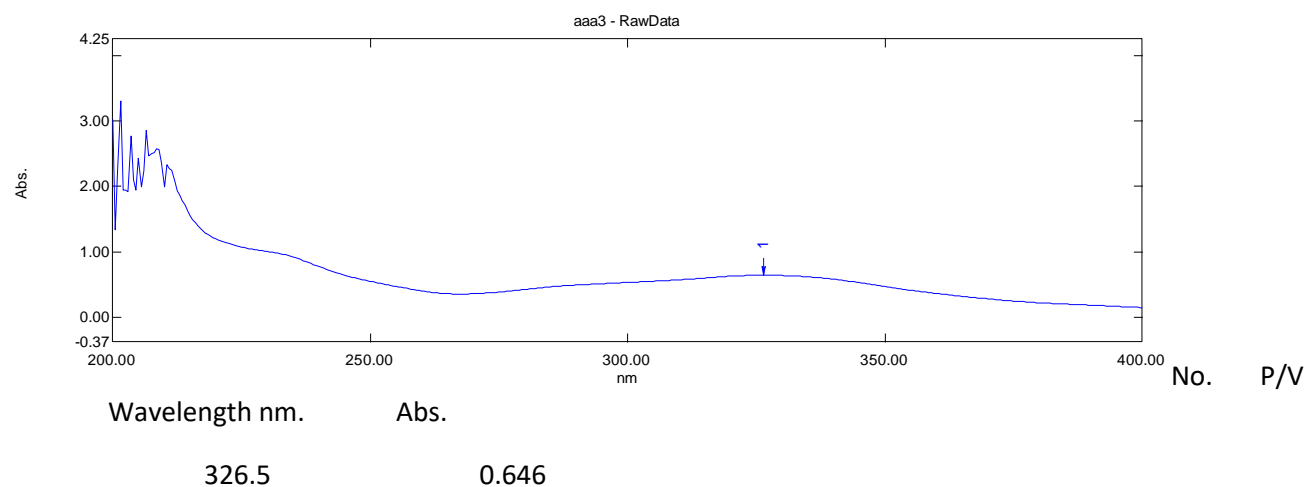
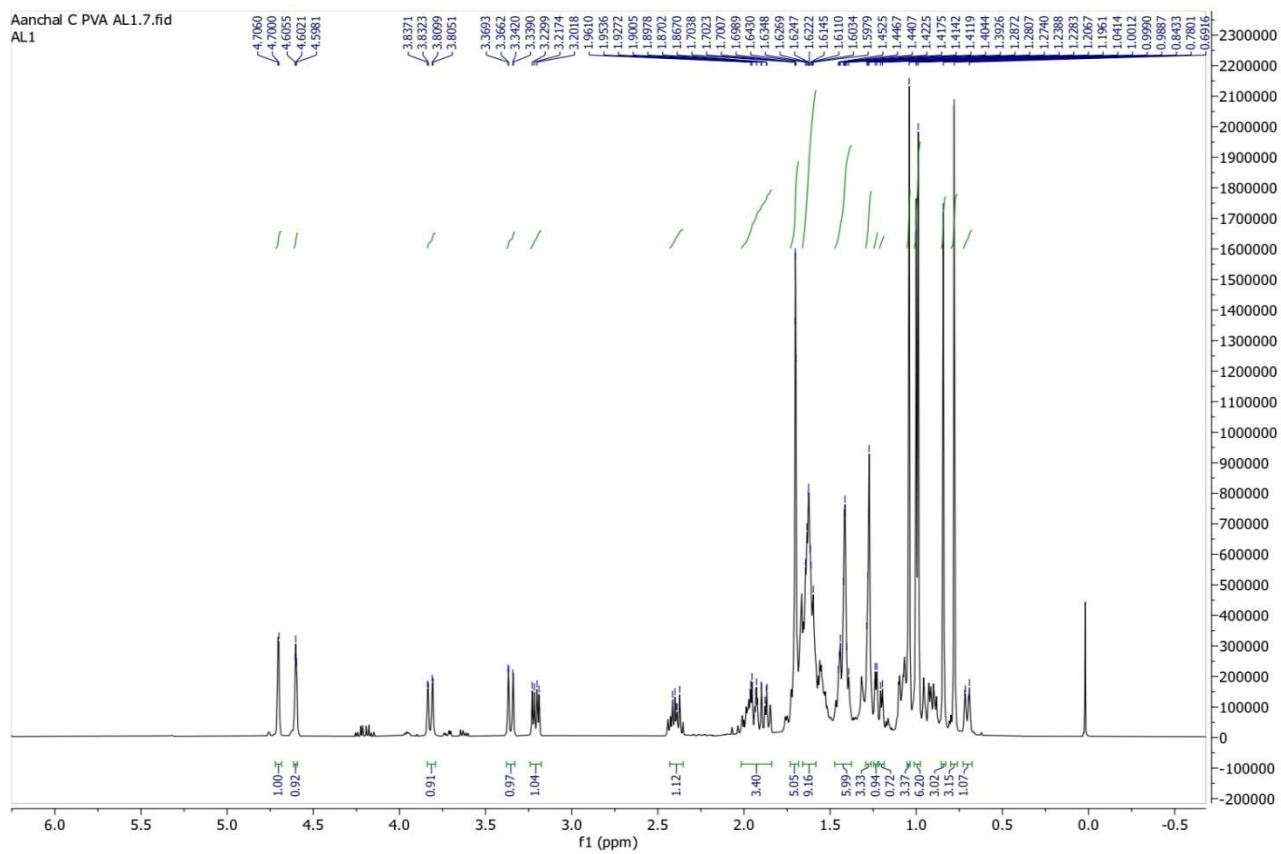


Figure S1: UV Spectroscopy of isolated betulin (VA1)



**Figure S2:  $^1\text{H}$  NMR of isolated betulin (VA1)**

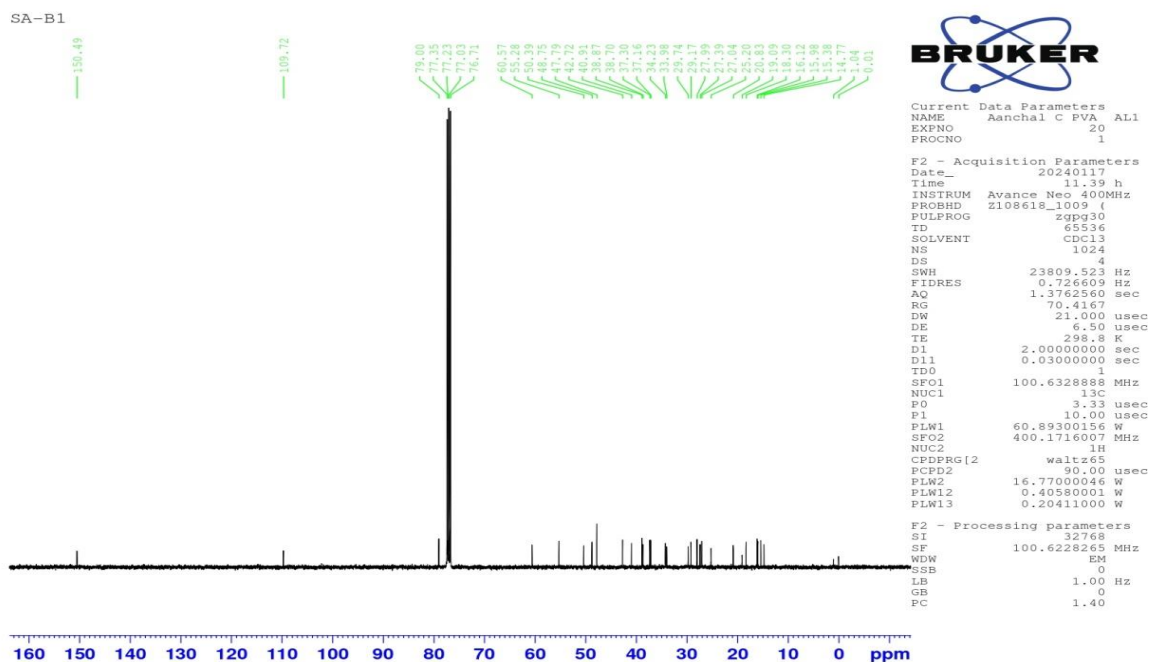


Figure S3:  $^{13}\text{C}$  NMR of isolated betulin (VA1)

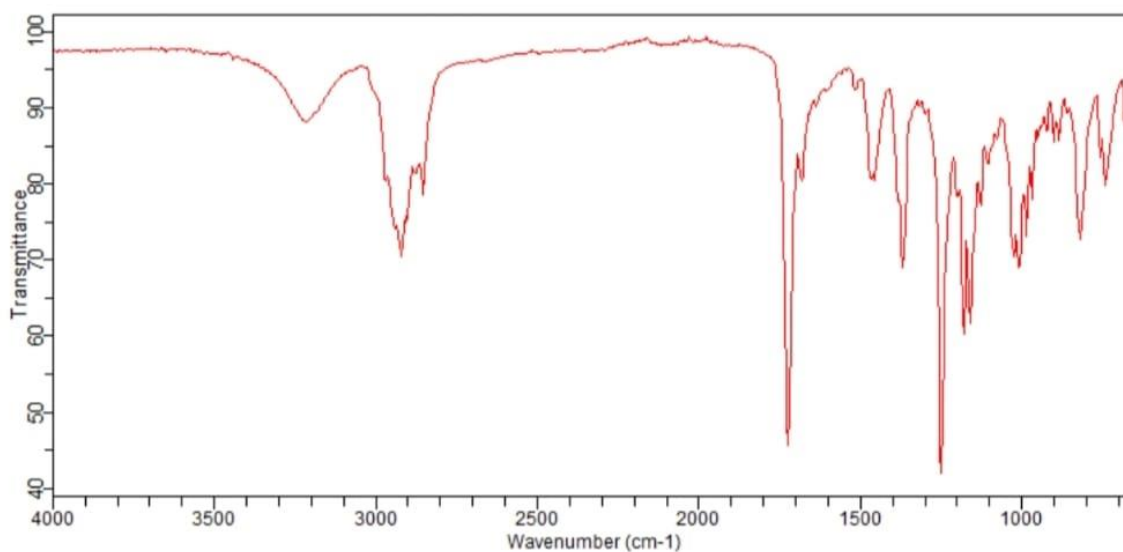
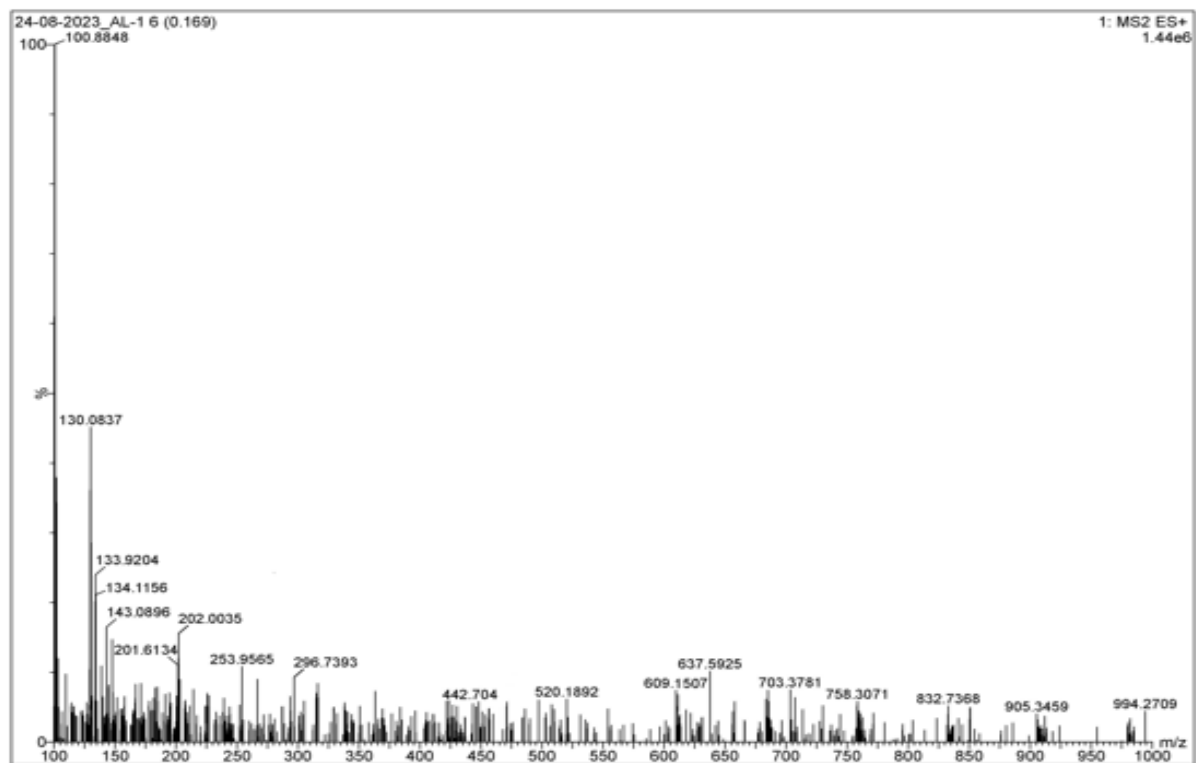
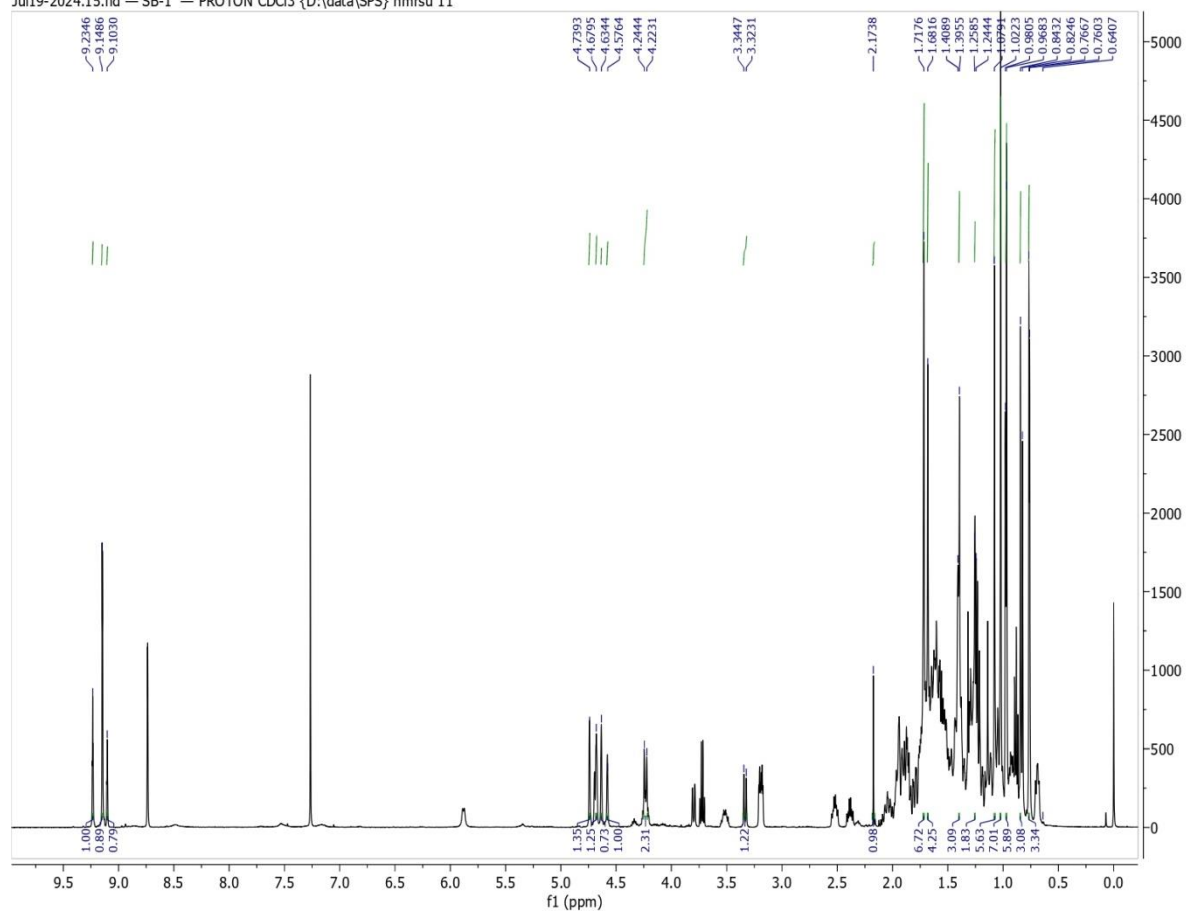


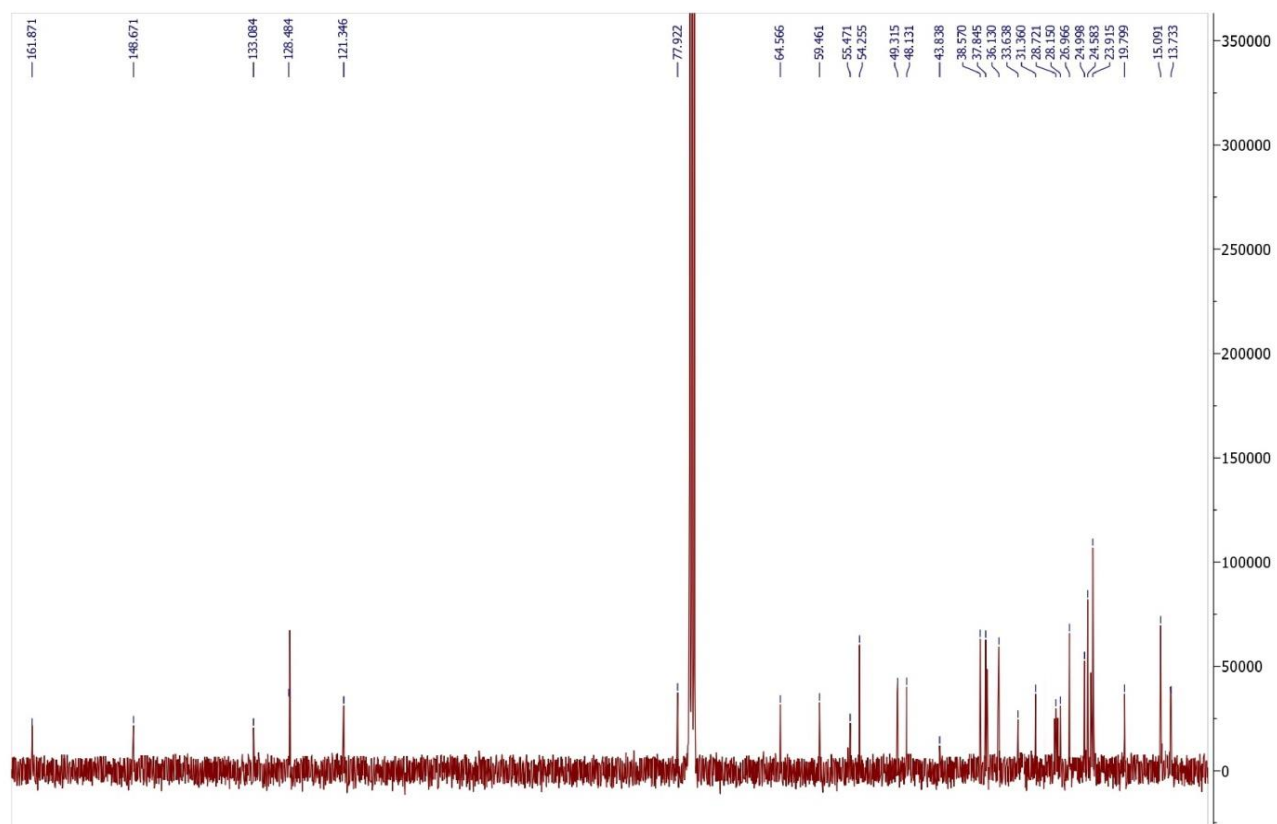
Figure S4: IR of isolated betulin (VA1)



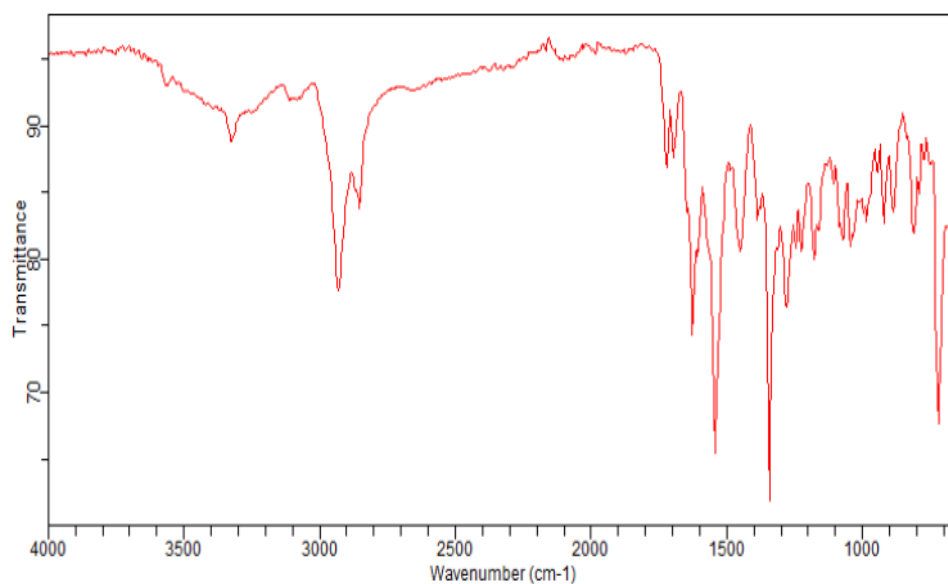
**Figure S5: MASS of isolated betulin (VA1)**



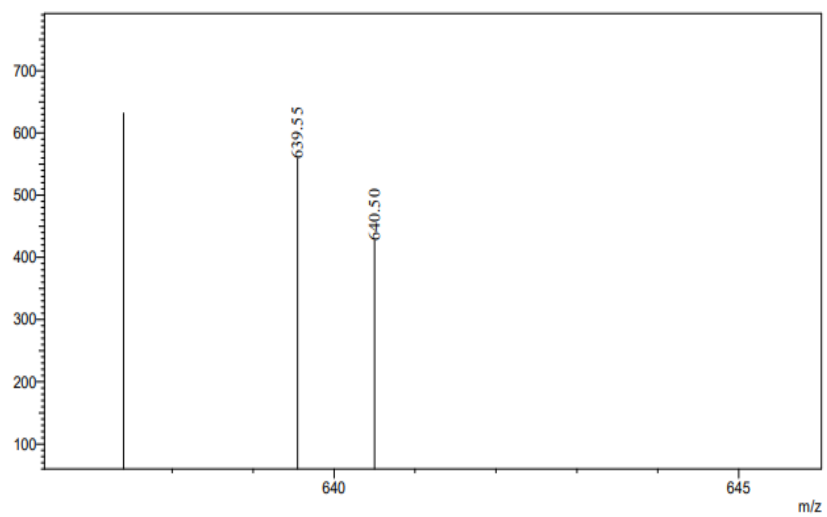
**Figure S6:  $^1\text{H}$  NMR of VA2 (3, 5- di-nitro benzoate betulin)**



**Figure S7:  $^{13}\text{C}$  NMR of VA2 (3, 5- di-nitro benzoate betulin)**



**Figure S8: IR of VA2 (3, 5- di-nitro benzoate betulin)**



**Figure S9: Mass of VA2 (3, 5- di-nitro benzoate betulin)**