

ABSTRACT

The present study is an effort to determine the comparative analysis of bioactive compounds of *in vivo* and *in vitro* n-hexane extracts of different parts (leave, petiole, node and internode) of *Tinospora cordifolia* by using GC/MS technique. The best callus produced had maximum callus index of 400 achieved at 13 combinations from explants used. The preference was given to leaves as the PGRs strength used was minimum. From GC/MS analysis of all extracts, it was revealed that total 60 bioactive compounds were identified in which 22 compounds were detected from *in vivo* samples extract while 38 compounds were noticed from *in vitro* n-hexane extracts. A few bioactive compounds were found to be present in both sample extracts. The major constituents obtained from different parts in order of merit were: Didodecyl phthalate (73.16 %); 1, 2-Benzenedicarboxylic acid, bis(2-ethyl hexyl) (45.62 %; Acetic acid, 2-methyl propyl ester (42.24%). While the major compounds which detected from all *in vitro* extract were: 4-oxopentanoic acid (39.61%); 1,2-Propadiene (23.1%); Palmitic acid (21.43%).