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## Comparative phytochemical constituents of *Leucaena leucocephala* (Lam.) leaves, fruits, stem barks, and wood branches grown in Egypt using GC-MS method coupled with multivariate statistical approaches

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This work, for the first time, identified the phytochemical constituents of leaves, fruits, stem barks, and wood branches extracted from the tree pruning wastes of *Leucaena leucocephala* (Lam.) de Wit. grown in Egypt, showing 49, 29, 34, and 27 phytochemicals, respectively, as assayed by gas chromatography-mass spectroscopy (GC-MS) analysis. The major components of leaves were 1,2-benzenedicarboxylic acid, mono(2-ethylhexyl) ester (17.67%), betulin (15.68%), lupeol (14.67%), androstan-17-one, 3-ethyl-3-hydroxy-, (5 $\alpha$ )- (12.34%), 9,12,15-octadecatrienoic acid, methyl ester, (Z,Z,Z)- (11.63%), betamethasone (9.73%), and  $\alpha$ -sitosterol (9.08). The major phytochemicals of fruits were  $\alpha$ -sitosterol (55.66%), 3 $\beta$ -hydroxy-5-cholen-24-oic acid (48.70%), 1, 2-benzenedicarboxylic acid, mono(2-ethylhexyl) ester (42.86%), lupeol (29.33%), betulin (15.76%), stigmasterol (12.83%) and campesterol (7.55%). The major phytochemicals of stem barks were 1,2-benzenedicarboxylic acid, diisooctyl ester (65.73%),  $\alpha$ -sitosterol (27.16%), betulin (22.06%), lupeol (21.08%), and 9,12-octadecadienoic acid (Z,Z)-, methyl ester (8.81%). Wood branches contained  $\alpha$ -sitosterol (60.09%), 1,2-benzenedicarboxylic acid, mono(2-ethylhexyl) ester (47.18%), lupeol (22.53%), campesterol (15.64%), and stigmasterol (14.09%). Most identified compounds have been reported to possess important biological activities, like antimicrobial, anti-inflammatory, anticancer, anti-arthritic, antioxidant, and antidiabetic activities, etc. The four constituents of *L. leucocephala* were statistically independent in these phytochemicals. The phytochemicals in five solvents were mixed in describing the four traits. These traits of *L. leucocephala* are potential bioresources for phytopharmaceuticals.

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