Chemical composition and antibacterial activity studies on calli of *Fagonia arabica* L.

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Abstract: Callus cultures obtained from leaf, hypocotyle and terminal bud explants of *Fagonia spp.* (*Fagonia arabcia*, *Fagonia indica* and *Fagonia bruguieri*) were studied. This study revealed that leaf of *F. arabica* was the most suitable explant to induce calli especially on MS medium supplemented with 5mg/l kinetin + 1 mg/l NAA, this medium gave the highest percentage of calli induction, while the highest amount of calli was obtained using 5mg/l kinetin + 1 mg/l 2,4-D after six weeks, while MS medium supplemented with 6 mg/l kinetin+ 2 mg/l NAA represented the maintenance medium for giving large amount of yellow healthy calli after four weeks. The best sucrose concentration for obtaining the highest amount of both callus fresh and dry weights is 40 g/l. Maximum growth rates of this callus on both solid and liquid media was recorded after 20 and 10 days respectively. Preliminary phytochemical screening on this callus revealed the presence of carbohydrates and / or glycosides, saponins, sterols and/or triterpenoids, alkaloids, cardiac glycosides, cyanogenic glycosides, flavonoids, coumarins, irodoids, chlorides and sulphates, but this callus devoid of tannins and anthraquinones. Studying the chemical composition of this callus showed that it contains; raffinose, fructose, ribose and sucrose, the most dominant type of carbohydrates is fructose (7.77mg/g fresh weight). Callus contains also amino acids; aspartic acid, glutamic acid, serine, glycine, histidine, argenine, threonine, valine, isoleucine, leucine and phenylalanine, the most dominant type of amino acids is phenylalanine (25 mg/g fresh weight). Total phenols, alkaloids, flavonoids, saponins and oils present in fresh callus were 1.95, 113.40, 0.78, 10 mg/g and 0.68 % respectively. Six fatty acids were isolated and identified; myristic, palmitic, stearic, oleic, lenoleic and lenoleinic acids, the most dominant type of these fatty acids is oleic acid (45.7%). Comparative study through the antibacterial activity was carried out between callus and the intact leaf showed that, the antibacterial effect of this callus superior that of the intact leaf.

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