

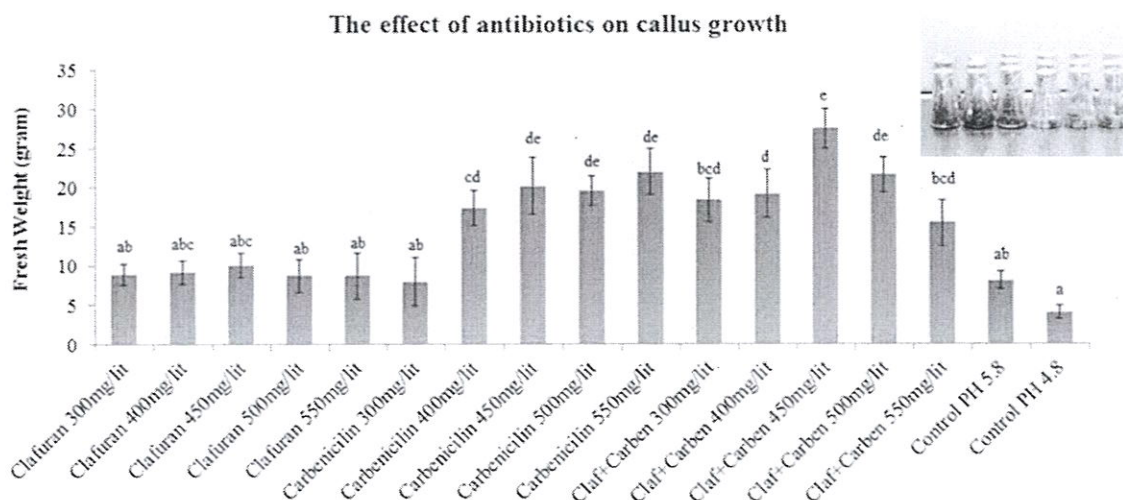
Hormonal effects of carbenicillin and cefotaxime on *Rhodiola rosea* callus culture

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Rhodiola rosea L. is one of the well-studied medicinal plants for its valuable pharmaceutical significance. Roseroot is difficult to cultivate and develops very slowly in its natural environment, justifying development of new methods for production of its pharmaceuticals. An attempt was done to optimise the callus culture condition to obtain the better *in vitro* yield. Culture medium contained (Sucrose (30 g/L), MS (4.4 g/L), NAA (1 mg/L) and BAP (0.5 mg/L) [1]. Different concentration of Carbenicillin and Cefotaxime (claforan) (300, 400, 450, 500 and 550 mg/L) separately and in equal combination were applied for 1 month in 10 days intervals. No inhibitory effects were observed in all of the treatments compared to control. The highest fresh and dry weight was measured in the medium with 450 mg/l of both carbenicilline and claforan (Figure) with about 20 fold higher accretion rate comparing with control. 28 grams fresh callus from 1 gram of starting plant tissue was recorded in this treatment after 1 month. Whereas, when antibiotics were added individually, the highest callus yield was 10 grams for calaforan (450 mg/L) and 20 grams for carbenicillin (500 mg/l), respectively when compared with the control (8 grams). This remarkable increase in callus growth rate is very significant from an *in vitro* production stand point. This result if applied for engineered roseroot cell lines, would lead to a justifiable *in vitro* production in a large scale.



[1] Mirmazloum I, Forgács I, Zok A, Pedryc A, György Z. Transgenic callus culture establishment, a tool for metabolic engineering of *Rhodiola rosea* L. Acta Scientiarum Polonorum-Hortorum Cultus 2014; 13(4): 95-106