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# Studying free proline content of calluses which are created in safflower hypocotyl in different concentrations of NacL

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## ABSTRACT

Investigating the effect of salinity on safflower hypocotyl callus, it was shown that the salinity positively impacted on callogenesis of both sensitive and resistant types in both light and darkness conditions; the increased NaCl concentrationled to increased callus index and better calluseswere formed. Measuring free proline content in callus of safflower, it was indicated that the increased salt concentration in culture medium led to increased accumulated proline in sensitive varieties and decreased proline content in resistant varieties which are under salt stress. The polyphenol oxidase enzyme activity increased largely with increasing of salinity; this increase was observed in both resistant and sensitive varieties of safflower and there was no significant difference between varieties in light and darkness situations. Comparing sensitive and resistant varieties, it was shown that more enzymes were produced in sensitive variety by stress. This study investigated the effect of different NaCl (180, 120, 60, and zero mM) treatments oncallogenesisrate, qualitative and quantitative measurements of polyphenol oxidase enzyme activity, and proline content in calluses of safflower hypocotyl in MS medium. The hormonal ratio of $^{mg}/_{li}$ =0.2Kin و$^{mg}/_{li}$2 =2, 4 – D was used to study the effect of salinity on callogenesis of hypocotyl of resistant and sensitive varieties of safflower in MS medium. The findings showed that the different hormonal treatments (in terms of concentration) have different effects on growth and appearance of calluses.

*Keyword:*
Free ProlineSallus, Cotyledon of Safflower; NacL

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