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**Portulaca Oleracea and gold nanoparticles biocompatibility
and osseointegration of dental mini-implant in rabbits**

Abstract

Aim: this study aimed to identified the biocompatibility and osseointegrative effect of Portulaca Oleracea in comparing to the Au nanoparticles by using histological and histomorphometric analysis.

Materials and methods: Leaves of plants dried by using dryer under 43°C for 24 hours then grinded, 10gm the grinned leaves dissolved in 100ml of ethanol by using method of maceration for 48hr. A dilution of gold nanoparticles was used in this research by dilute 0.3 ml of Au nanoparticles in 10 ml of distal water. titanium implants of 2 mm width and 8.5 mm length were used in this study. Twelve white male adult healthy New Zealand rabbits used, animals were divided into three groups according to the time of healing as follows; 3 days and week and 2weeks after operation. The coated implants were inserted following the applying one drop of Portulaca Oleracea extraction in the superior osteotomy and one drop of diluted Au nanoparticles in the inferior osteotomy, whereas the uncoated implants were inserted immediately in the middle one. Histological and histomorphometric analysis measured the RLT, OTT, BTT and FC number by LSD test.

Result: Portulaca Oleracea group showed enhancement the healing and bone formation in comparing to the other groups in all intervals, the PO group showed $p < 0.05$ with both Au and control group for OTT, BTT and FC in 2weeks interval.

Conclusion: PO coating material is biocompatible, and the acceleration of the osteoid tissue and bone trabeculae formation indicate the Portulacea Oleracea coating material is osteoinductive material accelerate osseointegration