البحث الأول

العنوان:

Curcumin nanoparticles have potential antioxidant effect and restore tetrahydrobiopterin levels in experimental diabetes

مكان و تاريخ النشر :

Published in: Biomedicine & Pharmacotherapy 131 (2020)110688.
ISSN: 0753-3322

Abstract:

Diabetes is associated with an increase in the production of free radicals, reduction of tetrahydrobiopterin (BH4, THB) levels and reduced bioavailability of nitric oxide (NO) in the vascular walls. In this contribution, we probed the effective role of curcumin nanoparticles (CUR-NPs) that prepared *via* solvent evaporation nanoprecipitation technique as potential system to attenuate endothelial dysfunction. In this technique, Tween 60 (polysorbate) was used as stabilizing agent for the prepared CUR-NPs and protect such nanoparticles from further agglomeration. BH4 levels and other parameters were estimated in diabetic rats. To this end, we dedicated 48 male albino rats, categorized into six groups; control (healthy rats), diabetic rats, along with four treated groups *via* oral administration of 0.2 mL/kg body weight/day of solutions of Tween 60 (60 mg/mL), free CUR (60 mg/mL), CUR-NPs1 (30 mg/mL), and CUR-NPs2 (60 mg/mL) for 30 days. Results showed that the mean level of malondialdehyde (MDA) has been significantly increased in diabetic group associated with a reduction of total antioxidant capacity, NO, and BH4 compared to control. These parameters were restored by the delivery of CURNPs – both doses in rats, compared with the two control groups that treated with Tween 60 and free CUR.