

Abstract

J Biomed Biotechnol. 2011;2011:506171.

Tocotrienol-rich fraction prevents cell cycle arrest and elongates telomere length in senescent human diploid fibroblasts.

Makpol S, Durani LW, Chua KH, Mohd Yusof YA, Ngah WZ.

Department of Biochemistry, Faculty of Medicine, National University of Malaysia, Jalan Raja Muda Abdul Aziz, Kuala Lumpur, Malaysia.

OBJECTIVE: This study determined the molecular mechanisms of **tocotrienol-rich fraction (TRF)** in preventing cellular senescence of **human diploid fibroblasts (HDFs)**.

METHODS: Primary culture of HDFs at various passages were incubated with 0.5 mg/mL TRF for 24 hours.

RESULTS: Telomere shortening with decreased telomerase activity was observed in senescent HDFs while the levels of damaged DNA and number of cells in G(0)/G(1) phase were increased and S phase cells were decreased. Incubation with TRF reversed the morphology of senescent HDFs to resemble that of young cells with decreased activity of SA- β -gal, damaged DNA, and cells in G(0)/G(1) phase while cells in the S phase were increased. **Elongated telomere length and restoration of telomerase activity were observed in TRF-treated senescent HDFs.**

CONCLUSIONS: **These findings confirmed the ability of tocotrienol-rich fraction in preventing HDFs cellular ageing by restoring telomere length and telomerase activity, reducing damaged DNA, and reversing cell cycle arrest associated with senescence.**

PMID: 21541185

[FREE FULL TEXT](#)