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DOLE protects leucocytes from hormone-induced DNA damage *in vitro*

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Both hormones thyroxin and adrenaline increase endogenous formation of reactive oxygen species (ROS), leading to oxidative stress and DNA damage. Dry olive leaf extract (DOLE) is plant product known to modulate effects of oxidants in human cells. Aim of our study was to evaluate ability of commercial DOLE to protect nuclear DNA from oxidative damage induced by different oxidants and to compare level of protective effect by using comet assay. Peripheral blood leukocytes were treated *in vitro* with DOLE under two protocols. First group of samples was exposed to oxidant and afterwards with three concentrations of DOLE (0,125, 0,5 and 1 mg/ml). Second group was pretreated with DOLE under same conditions, followed by the administration of oxidant. Effect of the extract with adrenaline treatment was most beneficial at smallest concentrations (0,125 mg/ml), while in treatment with thyroxin DOLE was most effective at 1 mg/ml in pretreatment and at 0.5 mg/ml in post-treatment. DOLEs protective effect was noticeable under both protocols compared to only oxidant exposed controls. Using the comet assay methodology, we were able to detect antioxidant and genoprotective properties of DOLE.

Keywords: DOLE, thyroxin, adrenaline, comet assay