

ABSTRACT

**SUPPLEMENTATION OF ETHANOL EXTRACT NANOPARTICLE
FROM DRUMSTICK LEAVES (*Moringa pterygosperma* Gaertn)
IMPROVES GOAT OOCYTE MATURITY LEVEL
IN MATURATION MEDIUM IN VITRO**

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Background: The condition of the in vitro maturation medium triggers the production of free radicals which affects the metabolism and development of oocytes. *Moringa pterygosperma* Gaertn leaves contain polyphenols as a source of exogenous antioxidants. Flavonoids are secondary metabolites of the structure of polyphenols which have biochemical, pharmaceutical and antioxidant effects. Flavonoid potential is limited because it is easily oxidized, low absorption capacity, large molecular size. The formulation of moringa leaf nanoparticles with active flavonoids is needed to increase the stability of active substances from environmental degradation, such as enzymatic decomposition, oxidation and hydrolysis, and to improve the absorption of an active compound.

Purpose: This study aims to analyze the effect of supplementation of ethanol extract nanoparticle from *Moringa pterygosperma* Gaertn leaves at a dose of 250, 500, and 750 μg in the maturation medium in vitro on the level of goat oocyte maturity.

Materials and methods: Formulation of nanoparticles using the top down method with the active ingredient of *Moringa* leaf flavonoids. Oocytes are collected from the ovaries of local abattoirs by aspiration and are matured for 24 hours in different mediums of maturation. The study consisted of 4 groups of 250, 500, 750, and 0 (control) μg of nanoparticle supplementation.

Results: There was an effect of various variations in the dose of supplementation of ethanol extract nanoparticle from *Moringa pterygosperma* Gaertn leaves on the level of maturity of the metaphase II oocytes with a significance value ($p = 0.005$). There was a difference in the effect of the percentage of metaphase II stage oocyte maturity between the control group and the 250 μg dose ($p = 0.029$) and 500 μg dose ($p = 0.002$).

Conclusion: Supplementation of ethanol extract nanoparticles from drumstick leaves (*Moringa pterygosperma* Gaertn) in maturation medium in vitro could increase the level of goat oocyte nucleus maturity.

