

**SPERM QUALITY AND TESTICULAR STRUCTURE OF *MUS MUSCULUS* AFTER
GARCINIA MANGOSTANA L. PERICARP EXTRACT ADMINISTRATION IN DIFFERENT
POLARITY**

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ABSTRACT: This study was aimed to compare the effect of various doses of *Garcinia mangostana* pericarp extract using different solvent polarity on mice sperm quality and testicular structure after being exposed to 2-Methoxyethanol. As much as thirty-two mice of BALB/C strain divided into 8 groups (n=4/group); two control groups (negative and positive) and six treatment groups given various extract polarities (nonpolar, semipolar, and polar) and doses. All treatment was subcutaneously injected daily for 40 days (2-ME for 5 days and *Garcinia* extract for 35 days). The result showed that *Garcinia mangostana* pericarp extract on various solvent polarities and doses were able to significantly decreased DNA fragmentation compared to that of positive control group. Other sperm qualities and testosterone level on mice given 0.4 mg/kg of polar extract was found to be higher than the other treatment group. In negative control group, the structure and size of testicle appeared to be thicker. Lumen was also filled with sperm compared to treatment groups. It can be concluded that the administration of polar solvent extract of *Garcinia mangostana* pericarp at low dose (0.4 mg/Kg) was able to repair decreasing mice sperm quality and testicle structure after 2-ME exposure.

KEYWORDS : *Garcinia mangostana*, 2-Methoxyethanol, sperm quality, testicular structure, DNA fragmentation

INTRODUCTION

Garcinia mangostana is mostly used as medicinal plant because of antioxidative properties of active compounds found in the plant. Active compound used for medicinal purpose which was extracted from its pericarp was called *xanthone*. In the male reproduction system, xanthone was found to be able to improve sperm quality. Previous study showed that 25 and 50 mg/kg doses of methanol extract from mangosteen pericarp could increase mice spermatogenic cells quantity and sperm quality which were

previously exposed to 2-ME, but at higher dose of 100 mg/kg or more, on the contrary, it could increase *malondialdehyde* (MDA) level and decrease the number of

embryos conceived¹. From previous result, *Garcinia* extract at lower dose was able to improve spermatogenic cells quantity and sperm quality. This improvement on male reproductive system after being exposed to toxic compounds means that *Garcinia* contained active compounds with antioxidative properties. However, at higher doses, the extract could cause decreasing spermatogenic cells quantity and sperm quality instead, thus it was