BIOCHEMICAL, HORMONAL AND TOXICOLOGICAL EFFECTS OF CATHA EDULIS (KHAT) ON PREGNANCY AND FETAL DEVELOPMENT IN OLIVE BABOONS (PAPIO ANUBIS)

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DECLARATION

I, Muema, Emily Kamanthe declare that this thesis is my original work and has not been presented for award of degree in any other university.

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ABSTRACT

There is paucity of information on the effect of khat chewing on pregnancy outcomes and foetal development in females who engage in khat chewing. Thus, the present study was designed to utilize the olive baboons (*Papio anubis*) as animal model to determine the effect of khat on fetal toxicity, maternal blood pressure, circulating hormonal levels, blood biochemistry, organ histopathology and maternal weight. Six (6) pregnant olive baboons were randomly assigned into two groups; the control group (n = 3) that were administered with 100 ml of distilled water once a week while the treatment group (n = 3) which were given an oral dose of 5 g/kg body weight of crude khat extract for 8 weeks. Changes in dam’s body weight and blood pressure were measured. Liver, kidney, heart and ovaries were collected from the dams and the foetus to determine histopathological effect of khat. An increase in the liver function enzymes, albumin, urea, creatinine and sodium was observed in the treatment group compared to the control group ($P < 0.05$). The level of sodium (Na+) electrolyte was decreased in the treatment group compared to the control group ($P < 0.001$). Significant difference in body weight gain, birth weight and estradiol levels were observed in the treatment group. However, blood pressure, progesterone, luteinizing hormone and follicle stimulating hormone did not display any difference between the groups. Upon necropsy, the organs from the dams and the foetus of the treatment group showed necrosis, periportal fibrosis with focal degenerative changes, glomerular degeneration and infiltration with inflammatory cells. The study shows for the first time using non-human primates that khat, alters liver and kidney functioning and histopathology, estradiol levels, body weight of dam and foetus confirming that its use in pregnancy is toxic to the dam and developing foetus. However, further study is indicated to determine the underlying mechanisms utilized to alter the host biochemistry and the lethal doses that can lead to abortions, delivery of still births.
and foetal development. The effects of chronic consumption of khat should be evaluated during the entire period of pregnancy and at different dose rate.