The LD50 Study of Chemical Derived from The Ash Of The De-Seeded Fruit Head Of Oil Palm In Mice

Uzoamaka A Okoli^{1,2}, Michael T Okafor¹, Nkoyo I Nubila¹, Aaron C Okpe¹, Iroka J Udeniya¹

¹*Department of Pharmacology and Therapeutics, College of Medicine, University Of Nigeria Enugu Campus, Nigeria,*

²*Department of Medical Biochemistry, College of Medicine, University of Nigeria Enugu Campus, Nigeria*

BACKGROUND: An anhydrous chemical derived from the ash of de-seeded fruit head of the oil palm (*Elaeis guineensis*) named DFHCOP-A, has a remarkable high pH 12-14 hence an alkali. Ash filtrate from which DFHCOP-A was derived from is commonly used to prepare food delicacies native to the South-East part of Nigeria. Reports has shown cancer thrives in low pH. Cancer aggressiveness has been linked to the acidic extracellular microenvironment of tumor. The high pH of DFHCOP-A may have potentials to inhibit cancer growth and metastases.

OBJECTIVE: In this study we investigated the LD50 of DFHCOP-A in mice which will pave the way for subsequent studies on the anticancer and immunomodulatory effect of DFHCOP-A

METHODS: Two methods were used, Lorke's method and the up and down procedure (UDP). The tests were carried out in male and female mice which involved subcutaneous and oral administration. In the Lorke's method, female and male mice were divided in groups of three (n=3) for subcutaneous and oral administration. Varying doses, 10mg/kg, 100mg/kg and 1000mg/kg were given. In the second phase, two groups (n=3), were administered 2000mg/kg and 5000mg/kg subcutaneously and Orally.

For UDP, 5000mg/kg was administered subcutaneously (sc) to each male and female mouse in the limit test. In the main test, 7 and 12 male mice; 7 and 8 female mice were respectively treated subcutaneously and orally with doses of 550mg/kg, 1750mg/kg, 2000mg/ and 5000mg/kg.

RESULTS: By Lorke's method, LD50 of 3,162mg/kg was obtained for both female and male mice by both routes. Up and down procedure estimated LD50 is 2000mg/kg for female and LD50 is greater than 2000mg/kg for male mice administered subcutaneously. LD50 for the orally administered female and male mice gave 5000mg/kg.

DISCUSSION: From the data, the LD50sc(2000mg/kg) was lower than LD50oral(5000mg/kg) in the UDP while LD50sc and LD50oral were the same (3,162mg/kg) using Lorke's method.

CONCLUSION: UDP appears better than Lorkes methods because it highlighted the differential sensitivities of the male and female mice to DFHCOP-A, were female mice are more sensitive which reflected in LD50sc. Our results suggest that a safe therapeutic regime can be derived for further investigation using DFHCOP-A.