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EFFECTS OF CONCOMITANT ADMINISTRATION OF GINGER EXTRACT WITH SODIUM VALPROATE AGAINST MAXIMAL ELECTROSHOCK AND PENTYLENETETRAZOLE-INDUCED SEIZURES IN LABORATORY ANIMALS

Musa I. Yakubu¹, Nuhu M. Danjuma², Mohammed G. Magaji², Sani Malami³,
Ben A. Chindo¹, Medinat Y. Abbas¹

¹Department of Pharmacology and Toxicology, Kaduna State University, Kaduna, Nigeria

²Department of Pharmacology and Therapeutics, Ahmadu Bello University, Zaria, Nigeria

³Department of Pharmacology and Therapeutics, Bayero University Kano, Nigeria

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ABSTRACT

Sodium valproate is an anticonvulsant used in the treatment of epilepsy, while ginger (*Zingiber officinale*) is a well-known and widely used herb, spice and condiment. Its therapeutic benefits have been utilized in many traditional medicines. It was previously reported to have anticonvulsant effect. In this study, ginger was co-administered with sodium valproate for possible synergistic anticonvulsant effect using maximal electroshock test (MES) and pentylenetetrazole (PTZ) induced seizure models in chicks and mice. Two doses of sodium valproate (100 and 200 mg/kg) were co-administered with different doses of ginger (50, 100 and 200 mg/kg) in chicks and mice. There was no significant synergistic effect in protection against MES seizures but there was significant synergistic effect in protection against pentylenetetrazole induced seizures at doses of 100 and 200 mg/kg of the ginger extract. The results provide a lead for potential benefit of ginger as an adjunct in the treatment of epilepsy.

Keywords: *Ginger, Sodium valproate, Pentylenetetrazole, Maximal electroshock, Seizure*

INTRODUCTION

Epilepsy is a chronic brain disorder characterized by spontaneous recurrent seizures due to abnormal neural excitation in the brain (Shimada et al. 2014). It is thought to be the most common neurological disorder affecting more than sixty five million people worldwide (Katsarou et al. 2017; Lukawski et al. 2018), with about 80% of the affected individuals resides in low and middle income countries like sub-Saharan Africa and Latin America (Espinosa-Jovel et al. 2018). The prevalence has been estimated to be 5–10 per 1000 population (Lukawski, et al. 2018) and

the incidence tend to be higher in males than females (Fiest et al. 2017).

Epilepsy is a major public health problem especially in low income countries like sub-Saharan Africa where 75% of the affected people cannot afford the treatment (Espinosa-Jovel et al. 2018), and can cause serious physical and psychological consequences, including premature death, traumatic

Correspondence: Musa I. Yakubu, MSc, Department of Pharmacology and Toxicology, Kaduna State University, P.M.B. 2339, Kaduna, Nigeria. Email: mustycin@yahoo.com; +2348032874478

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