

IMPROVING ANTI-FOLIC ACID EFFICACY OF COTRIMOXAZOLE WITH MEDICINAL SYNTHETIC ALUMINUM-MAGNESIUM SILICATE FOR TREATMENT OF TRYPANOSOMOSIS

Akpan CAN¹, Ezeibe MCO¹ Sandra Mary Ekundayo¹, Okey SN², Ogbonnan IJ¹, Ezeibe FI²

¹Department of Veterinary Medicine, College of Veterinary Medicine, Michael Okpara University of Agriculture, Umudike.

²Department of Veterinary Biochemistry and Animal Production, College of Veterinary Medicine, Michael Okpara University of Agriculture Umudike, Nigeria

Corresponding author's email: claraamaka2@gmail.com

Background: The mechanism of Cotrimoxazole (Sulfamethoxazole and trimethoprim) as an anti-bacterial drug is the inhibition of Folic Acid but its anti-trypanocidal efficacy has not been investigated, though Trypanosomes also require Folic Acid for replication. Development of resistance by Trypanosomes against trypanocidal drugs, frequent relapse infections and toxicity of most trypanocides demand continuous search for new Trypanocidal drugs. Aluminum magnesium silicate (AMS) and its formulation named *Medicinal Synthetic AMS* (MSAMS) have been reported to stabilize other medicines. Stabilizing medicines improves the length of time they remain at high bioavailability; their efficacies improve when drugs remain at high concentration in plasma for a long time. Improving the anti-folic acid efficacy of Cotrimoxazole may deny Trypanosomes Folic Acid, to the extent that their replication could be inhibited.

Objectives:

- To treat *Trypanosoma brucei brucei* infected West African Dwarf (WAD) sheep with Cotrimoxazole-MSAMS drug formulation.
- Parasitaemia-determination in infected sheep treated with Cotrimoxazole-MSAMS formulation.

Methods: Five (5) *Trypanosoma brucei brucei*-infected sheep (WAD) were treated with Cotrimoxazole MSAMS formulation at a dose of 120mg/kg while another group was left untreated.

Results: Mean parasitaemia of 80.49±7.56 million parasite per ml of blood was recorded just before commencement of the treatment but nine days after treatment with the Cotrimoxazole-MSAMS formulation the parasitaemia of the treated group reduced ($P \leq 0.05$) from 2.25±1.50 in the control to 0.00±0.00).

Conclusions: MSAMS enhanced anti-Folic Acid efficacy of Cotrimoxazole so that it cleared Trypanosome parasitaemia and there was no relapse.

Citation: Akpan et al. ASFI Annual Conference and Boot Camp, 28th-30th November 2023



Copyright: © 2024 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).