28th International Conference of the World Association for the Advancement of Veterinary Parasitology
WAAVP Dublin 2021
19th-22nd July 2021, Dublin Ireland

IN VIVO TOXICITY AND EFFICACY OF ONE BENZIMIDAZOLE AND TWO DIAMINE DERIVATIVES AGAINST THE GASTROINTESTINAL NEMATODE *Haemonchus contortus*

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INTRODUCTION

- Parasitism caused by gastrointestinal nematodes is a major constraint in small ruminant's production.
- The increased lack of efficacy of anthelmintic drugs urgently requires the **search of new compounds.**
- In this study**, two diamine (AA) and one benzimidazole (BZ) derivatives** were evaluated for efficacy against *Haemonchus contortus* in a gerbil model and tested for toxicity in mice.

Compounds were selected from *in vitro* previous experiments carried out on *Teladorsagia circumcincta.*

MATERIAL AND METHODS

PREVIOUS ASSAYS

T. circumcincta

Egg Hatch Assay

Larval Migration Inhibition Assay

AA-1 → Activity against eggs [IC_{50} = 1.01 µM]

AA-2 → Activity against L3 [IC_{50} = 2.67 µM]

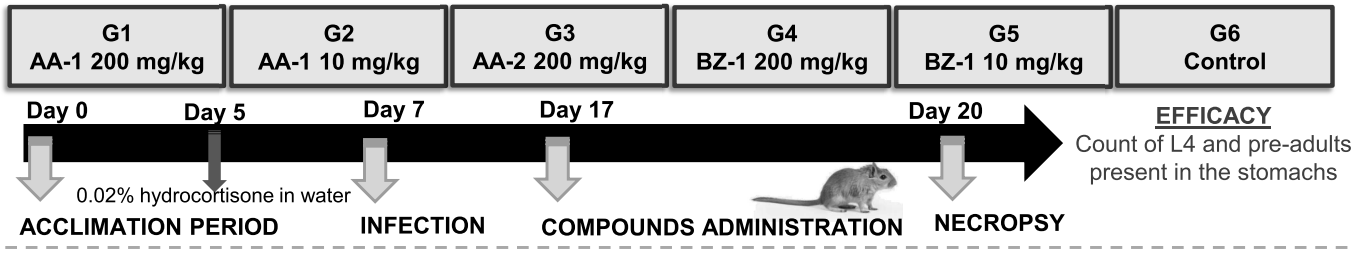
BZ-1 → Activity against eggs [IC_{50} = 1.47 µM]

1 ACUTE TOXICITY ASSAY

- 16 (n=4/group) female mice of 8 weeks old were used.
- Compounds were administered orally by gavage: 250 mg/kg bw.
- All groups were observed for **14 days**.
- The vital organs were preserved for histopathological examination.

2 IN VIVO EFFICACY ASSAY

- 35 (n=5/group) female gerbils weighing 40-45 gr were infected with 1,000 exsheathed *H. contortus* L3 each one.



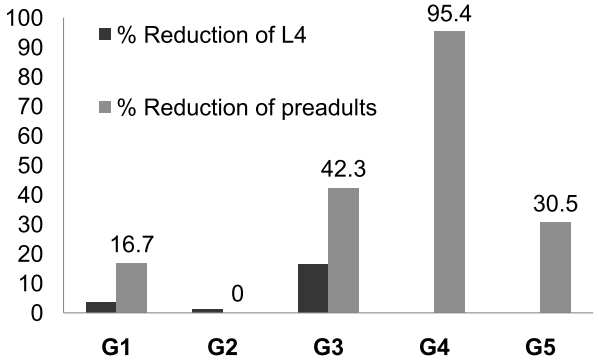
RESULTS

TOXICITY ASSAY

None compound causes:

- ✓ Death of animals or the appearance of clinical signs related to toxicity
- ✓ Alteration in body weight
- ✓ Macroscopic lesions in organs
- ✓ Histological alteration in liver, lungs, heart, kidney and spleen.

EFFICACY ASSAY



CONCLUSIONS

- BZ-1 displayed a reduction of 95% in the number of *H. contortus* pre-adults present in the stomach of gerbils, however it did not affect the number of L4.
- This may indicate that the compound affects the development of the parasite towards its adult form.
- Further efficacy studies in sheep will be conducted to confirm the BZ-1 efficacy against the *H. contortus* adult stage.

Funding: MINECO (AEI, FEDER, UE): AGL2016-79813-C2-1R/2R and SAF2017-83575-R and Junta de Castilla y León (JCyL) cofinanced by FEDER, UE [LE020P17]. EVG is funded by JCyL and MMV by Ramón y Cajal Programme (RYC-2015-18368).