

# *In vitro* effects of maize silage extracts on *Haemonchus contortus*, gastrointestinal nematode parasite in Red Maradi Goats

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## 1 ABSTRACT

In tropical environments, goat rearing faces numerous challenges especially those related to poor feeding and gastrointestinal nematodes infections. This present study aimed at assessing the *in-vitro* effects of maize silage on *Haemonchus contortus*, a gastrointestinal nematode in Red Maradi goats in Benin. After planting and harvesting the maize at 6 and 8 weeks old, the Maize stalks were used to produce silage. The silage was then reduced into powder and extracted using distilled water, hydroethanol and chloroform. Extracts solutions were then prepared at different concentrations and put in contact with *H. contortus* infesting larva and adult worms. Both 6- and 8-week-old maize silages significantly inhibited *H. contortus* larva migration ( $P<0.05$ ) and adult worms' motility ( $P<0.05$ ). The effect on the larval migration depended on the solvents ( $P<0.05$ ) and the concentrations ( $P<0.05$ ) but was only concentration-dependent ( $P<0.05$ ) on the adult worm motility. The highest larval migration inhibition rate (52.25%) was recorded with the 8-week-old maize silage. Among 6-week-old maize silage extracts, the best larval migration inhibition (LMI) rates were recorded at 1200  $\mu\text{g/mL}$  of the hydroethanolic and chloroformic extracts (72.46% and 67.00% respectively). As regard the 8-week-old maize silage, the best LMI rates (72.49% and 71.07%) were respectively observed in the aqueous extracts (600  $\mu\text{g/mL}$ ) and the hydroethanolic extracts (150  $\mu\text{g/mL}$ ). The inhibition rate of adult worms' motility, 6 hours after incubation, ranged from 33.33% to 66.67% and was of 100% after 12 hours of incubation. These inhibitory effects are attributed to chemical compounds contained in the extracts such as alkaloids, anthocyanins, reducing compounds, mucilages and triterpenoids. This potentiality of the maize silage could be further considered while designing a sustainable programme to control *H. contortus* in goats, particularly in dairy goats as Red Maradi goats.