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Use of trees and shrub by farmers to control gastrointestinal nematodes (GIN) in extensive livestock production systems of West Africa

AMINATA BEYE¹, LINDA CLETCHIO GABRIELLA TRAORÉ², MAMADOU COULIBALY³, TAMSIR MBAYE⁴, EVA SCHLECHT⁵, MARIÈME FALL BA⁴, DAUDA NGOM¹, FELIX HECKENDORN⁶, REGINA ROESSLER⁷, HADJA SANON², DRISSA COULIBALY³, HAWA COULIBALY³, SITA SANOU², ASSAN G. FALL⁸

¹*Cheikh Anta DIOP University, Senegalese Inst. of Agricultural Research, Dept. of Plant Biology (FST/UCAD), Senegal*

²*Nazi Bony University (UNB), Dept. of Animal Prod. Syst. (SNA/SPA), Burkina Faso*

³*Inst. Polytechnique Rurale / de Formation et de Recherche Appliquée (IPR/IFRA) /Institut d’Economie Rurale, Breeding Science and Technology / Cattle Program, Mali*

⁴*Senegalese Inst. for Agric. Res. (ISRA), National Forestry Research Centre (CNRF), Senegal*

⁵*University of Kassel / University of Goettingen, Animal Husbandry in the Tropics and Subtropics, Germany*

⁶*Research Inst. of Organic Agriculture (FiBL), Animal Science Dept., Switzerland*

⁷*University of Kassel, Animal Husbandry in the Tropics and Subtropics, Germany*

⁸*Senegalese Institute of Agricultural Research, Senegal*

Abstract

Traditional veterinary practices have taken a back seat to modern veterinary medicine in livestock health management in Africa. However, the latter is not able to cope with all health problems on livestock farms, especially in rural areas where access to quality veterinary drugs and services is not available. Adding to this is the low purchasing power of livestock farmers. They are forced to resort to traditional practices to treat their animals in case of disease, which is especially true for gastrointestinal nematodes (GIN) in small ruminants.

This study aimed to identify, with the herders, the local woody plant species usually used to treat parasitic infections of small ruminants in West Africa. Indeed, in traditional medicine, woody species represent about 65 % of the most important African medicinal plants. An ethno-botanical survey based on semi-structured interviews was conducted with 370 herders and agro-pastoralists in Senegal, Mali and Burkina Faso between June and July 2021. More than 60 % of the respondents stated that the use of tree-based remedies has a positive impact on animal health. Out of 81 herders surveyed in Senegal, 42.0 % used woody plants for animal health treatment. In Burkina Faso, 28.7 % out of 159 farmers used ligneous plants to treat their animals against gastrointestinal strongyles. In Mali, 16.4 % out of 130 farmers used parts of trees to treat small ruminants against GIN. Across the three countries, 20 woody species belonging to 10 botanical families were identified as being regularly used to treat GIN. *Khaya senegalensis*, *Azadirachta indica* and *Faidherbia albida* were the most commonly cited species, and at family level Fabaceae (67 %) dominated

before Meliaceae (17%) and Combretaceae (17%). Leaves (50%), pods (33%) and bark (17%) were the organs mainly used to produce herbal anthelmintics. The cross-country comparison of results revealed that, although farmers have a good knowledge of effective plant-based GIN control, preparation formulae and application doses are often variable and only mastered by a few users. In view of smallholders' reliance on herbal medicine, more effort should be devoted to tap the potential of woody plants as alternative remedies for the treatment of GIN in sheep and goats.

Keywords: Gastrointestinal nematodes, small ruminants, West Africa, woody plant species