



Tropentag, September 20-22, 2023, hybrid conference
“Competing pathways for equitable food systems transformation:
Trade-offs and synergies”

Investigation on *in vitro* nutritive values and *in vitro* methane production of different tree legume forages available in the campus of the university of veterinary science, Yezin, Myanmar

AUNG AUNG, ULRICH KUCH

Goethe University, Frankfurt, Institute of Social Medicine, Occupational Medicine and Environmental Medicine, Germany

Abstract

By feeding on feedstuffs that cannot be used for monogastrics and human beings, ruminants can convert such plant matter to meat, milk, hide, etc. The major feed for ruminants in tropical developing countries is roughages with low quality nutritive values. To meet the requirement of the animals, it is necessary to improve the nutritive values of roughages by various methods such as physical treatment, chemical treatments and supplementation with concentrates. Protein rich tree legumes are alternative supplements to replace for concentrates. Nowadays, climate smart livestock systems are an important issue, because ruminants emit methane from enteric fermentation. It is noticeable not only on *in vitro* methane production, but also on *in vitro* nutritive values as important information for the mitigation of methane emission from ruminants. We thus conducted an experiment with the aim to investigate the *in vitro* nutritive values and *in vitro* methane production of tree legume forages collected from the campus of the University of Veterinary Science in Yezin, Myanmar. Forages of four tree legumes, *Albizia saman*, *Albizia procera*, *Leucaena leucocephala* and *Gliricidia sepium* were amassed for use as experimental feedstuffs in a completely randomised design with four replicates. The Hohenheimer Futtermittel-Test was applied for *in vitro* methane measurement and *in vitro* nutritive values. Of these feedstuffs, *Leucaena* leaves had the highest dry matter digestibility, organic matter digestibility, dry matter intake and metabolisable energy all significantly higher than those of the others ($p < 0.05$). In the aspect of total gas at 24 hours incubation time, *Leucaena* and *Gliricidia* had significantly higher amounts than the rest of the feedstuffs while no significant difference in methane concentration was observed. According to these findings, *Leucaena* gave more satisfactory results than others because it had higher *in vitro* nutritive values and the same amount of methane concentration compared with the other tree legume forages.

Keywords: In vitro, *in vivo*, methane, tree foliages