



Tropentag, September 18-20, 2019, Kassel

“Filling gaps and removing traps  
for sustainable resource management”

## Potential of Phytochemicals in Filling Gaps and Removing Traps for Sustainable Livestock Production without Antibiotics

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### Abstract

In the current era of antibiotic free animal production, medicinal plants and spices are been highlighted to fill gaps and remove traps for sustainable livestock resource development. Secondary plant metabolites such as tannins, saponins, flavonoids, anthraquinones and other compounds with antimicrobial, antibacterial, antifungal, antiviral and immune response inducing potential can successfully fill gaps in sustainable livestock resource development without antibiotic growth promoters. This will ultimately benefit both producers and consumers of animal products. In order to better understand these potentials of phytochemicals, qualitative and quantitative analysis of the methanolic extract of *Ocimum gratissimum* (lyn) was carried out. Qualitative analysis for specific phytochemical was carried out as follows: terpenoids (Liebermann – Burchard test); phenolic compound (Lead acetate test); tannins (Ferric chloride test); flavonoids (Shinoda’s test) and reducing sugars (Fehling’s test). Total flavonoid content was expressed as Rutin equivalents (mg Rutin Equivalents per g extract). The total phenolic content of the extract was estimated using the Folin Ciocalteu reagent method and result obtained reported as Gallic acid equivalent per g of extract. All analysis was carried out in triplicates.

Qualitative analysis revealed the presence of terpenoids, phenolic compounds and tannins – heavily detected (+++) while flavonoids were detected (++). Quantitative analysis indicated reducing sugar concentration of 9.01 mg g<sup>-1</sup> of extract. Other phytochemicals were; 5.66 mg g<sup>-1</sup> of extract (tannins). Total phenolic content measured as Gallic acid equivalent was 37.45 mg Gallic acid equivalent per g of extract while total flavonoid content measured as Rutin equivalent was 35.12 mg Rutin equivalent per g of extract.

From the results obtained, it is obvious that *Ocimum gratissimum* has secondary metabolites with potential to fill gaps in sustainable livestock resource development in the absence of antibiotics.

**Keywords:** Antibiotics, livestock production, *Ocimum gratissimum*, phytochemicals