Potential of phytogenics in filling gaps and removing traps for sustainable livestock production without antibiotics
Christabel Aghorowei, Amamieghaye Edum, Ruth Tariebi S. Ofongo

Message:
Medicinal plants and spices may fill gaps and remove potential traps for sustainable livestock production without antibiotics.

Introduction:
- Sustainable livestock production without antibiotics makes issues of pathogenic bacteria infections in farmed animals of utmost concern to farmers with regard to mortality and profitability.
- 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.

Materials and method:
- Freshly harvested *Ocimum gratissimum* (lyn) leaves were separated from the stalk placed in zip lock bags and sent to the laboratory for analysis. The leaves were washed lightly with distilled water and oven-dried at a temperature of 40°C for 72 hours to constant weight.
- The dried leaves were then ground to powder form with an electric milling machine.

Extraction
Methanolic extract of *O. gratissimum* leaf powder was obtained by using cold maceration method using 80 % methanol (Sigma-Aldrich Analytical grade).

Phytochemical analysis
- 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 /g of extract).
- Total phenolic content of the extract was estimated using the Folin Cioacalteau reagent and result obtained reported as Gallic acid equivalent /g of extract. All analysis was carried out in triplicates.

Results

<table>
<thead>
<tr>
<th>Secondary metabolites</th>
<th>Level / concentration/gm of extract</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terpenoids</td>
<td>+++ (heavily detected)</td>
</tr>
<tr>
<td>Phenolic compounds</td>
<td>+++</td>
</tr>
<tr>
<td>Tannins</td>
<td>+++</td>
</tr>
<tr>
<td>Flavonoids</td>
<td>++ (detected)</td>
</tr>
<tr>
<td>Total phenolic</td>
<td>37.45mg Gallic acid equivalent</td>
</tr>
<tr>
<td>Flavonoid</td>
<td>35.17mg Rutin equivalent</td>
</tr>
</tbody>
</table>

Conclusion:
*Ocimum gratissimum* (lyn) has secondary metabolites with potential to fill gaps and remove traps for sustainable Livestock production in the absence of antibiotics.

Acknowledgement:
Mr Usman, Mr Yusuf and Samuel Ofongo are gratefully acknowledged for their contribution to this work.

Email: tariruth@live.de; ruthofongo@gmail.com
Telephone: +234 (0) 8038827764
ORCID ID: https://orcid.org/0000-0002-2156-55

POULTRY NUTRITION AND ANIMAL BIOTECHNOLOGY RESEARCH GROUP
Tropentag, September 18-20, 2019, Kassel “Filling gaps and removing traps for sustainable resource management”