

### البحث الثامن

<b>A.M. Abd El-Mola (2019).</b> Effect of substitution partially or completely replaced butterfly pea ( <i>Clitoria ternatea</i> ) forage on in vitro rumen fermentation and productive performance of calves. <i>Egyptian Journal Nutrition and Feeds</i> , 22: <u>Accepted</u>	البحث الثامن
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<b>Title</b>	Effect of substitution partially or completely replaced butterfly pea ( <i>Clitoria ternatea</i> ) forage on in vitro rumen fermentation and productive performance of calves
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### ABSTRACT

This study was conducted to evaluate effect of forage *Clitoria ternatea* replacement on rumen fermentation characteristics (*in vitro*) and growth performance of fattening calves (*in vivo*). Twenty four male crossbreed (Friesian \* Balady) local calves with mean initial body weight of 250±2.5 Kg were divided into three groups of 8 animals each. The animals were fed mixed ration at rate about 2.3% of their live body weight in group feeding. The first calves group was fed on the control ration 60% CFM+30% Egyptian clover + 10% Rice straw. The second calves group were fed 60% CFM+6% Egyptian clover + 2% Rice straw+ 32% *Clitoria ternatea* (CT80), while the third calves group were fed 60% CFM+ 40% *Clitoria ternatea* (CT100). The replacement of Egyptian clover and Rice straw with *Clitoria ternatea* led to increase *in vitro* dry matter (IVDMD %) and organic matter (IVOMD %) degradability with increasing level *Clitoria ternatea*. The optimum levels of *Clitoria ternatea* replacement were 80% and 100%. While was insignificant (P<0.05) increase in all ruminal basic parameters (e.g. pH, NH<sub>3</sub>-N and TVF's). In significant differences (P<0.05) between three tested rations (control, CT80 and CT100) at different time 0, 3 and 6 hrs post feeding were noticed for pH value, NH<sub>3</sub>-N and TVF's concentrations in the rumen liquor. Nutrients digestibility significant (P<0.05) increase of apparent digestibility of DM, OM, CP and NFE for calves fed *Clitoria ternatea* containing ration (CT80 and CT100) compared with the control ration. The calves fed (CT100) showed the highest (P<0.05) TDN followed by calves fed (CT80) then calves fed the control ration which recorded lowest values for TDN and DCP. The calves fed (CT100) ration had higher (p<0.05) plasma protein, albumin and globulin values followed by those fed CT80 and control ration respectively. The calves fed control ration had higher (p<0.05) plasma urea nitrogen than those fed rations containing *Clitoria ternatea* (CT80 and CT100). The calves received ration replacement with *Clitoria ternatea* 100% (CT100) grew faster than those received CT80 and control ration. The total body weight gain and average weight gain were higher (p<0.05) for calves fed of CT100 by about 14%, 12.5 % compared to calves feed of control and CT80 rations respectively. feed conversion as DM, TDN and DCP were improve (p<0.05) for calves fed ration replacement with 100% *Clitoria ternatea* (CT100) by 13.38, 11.84, and 11.66% respectively compared with calves fed control ration

It could be concluded that *Clitoria ternatea* can safely, successfully and economically. The full replacement of Egyptian clover and Rice straw with *Clitoria ternatea* rations of calves improved nutrient digestibility, body weight gain, feed conversion and efficiency of protein utilization.