*re-edited version that I suggest for the **Abstract and Conclusion***

ABSTRACT

Aims: To compare, on an experimental basis, the respective relevance of two mathematical models estimating the rumen fermentation parameters of some plant and animal protein sources: the "exponential" model by Ørskov & McDonald (EXP) and the" sigmoid" model by France *et al*. (FRC).

Study design:
The study was conducted at the University of Ardebil (Iran) between 2014 and 2016. In order to conduct the experimental part of the study, sources of plant protein (soybean meal, rapeseed meal and cottonseed meal) and sources of animal protein (poultry offal meal, fish meal and blood meal) were obtained from the agricultural sector and the local slaughterhouse.

Methodology: Gas production was measured for 6 feeding contents in 3 repeats at 3 separate periods. The volume of gas produced after 2, 4, 6, 8, 10, 12, 16, 24, 36, 48 and 72 hours incubation were measured and checked against two models estimating gas production parameters and ruminal fermentation kinetics.

Results: The amounts of gas production potential and the rate constant gas production according to both models, EXP and FRC, was not significantly different. However, the two models differ significantly regarding the length of the lag phase (T lag) which is significantly longer in the model EXP, than in the model FRC; due to model EXP substantially overestimating the actual time-lags.

Conclusion: The sigmoid model FRC, proposed by France et al., appears providing more relevant estimates than does the exponential model EXP by Ørskov & McDonald, at least regarding the duration of the lag phase before starting of the fermentation process. Accordingly, it seems that the sigmoid FRC model should be preferred over the exponential EPXP model.

4. CONCLUSION

According to the goodness-of-fit tests, the two compared models differ substantially from each other, in particular regarding the estimation of the time-lag preceding the fermentation process. Namely, the sigmoid model FRC, proposed by France et al., appears providing more relevant estimates, in this respect, than does the exponential model EXP by Ørskov & McDonald. For this reason, the sigmoid model FRC should arguably be preferred over the exponential model.