IN VITRO DEGRADATION AND GAS PRODUCTION OF TROPICAL BROWSE PLANTS IN DIFFERENT STATUS

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Introduction

- Tropical browse may constitute an important fodder for ruminant semi-intensive farming

- Problem with tropical browse plants is high content of secondary compound (tannins and saponin) which reduce the nutritive value (Fall *et al*., 1998).

- Limited information about tropical browse plants were fermented in different status, such a single ingredient, mix with grass or in a complete ration for small ruminant.

Objectives of the research

- to evaluate in vitro dry matter degradation and gas production of tropical browse plants :

  as a single forage

  mix with native grass

  and in the complete ration

Materials and Methods

- Five tropical browse plants (TBP):

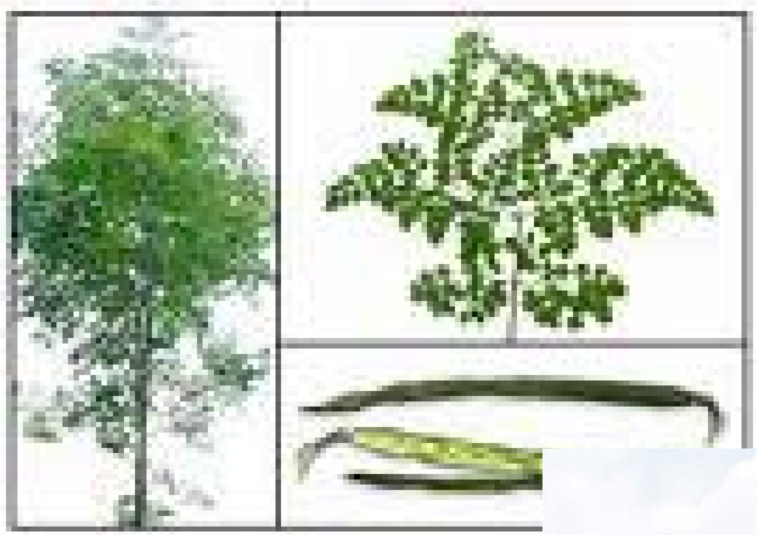
  Leucaena leucochepala,

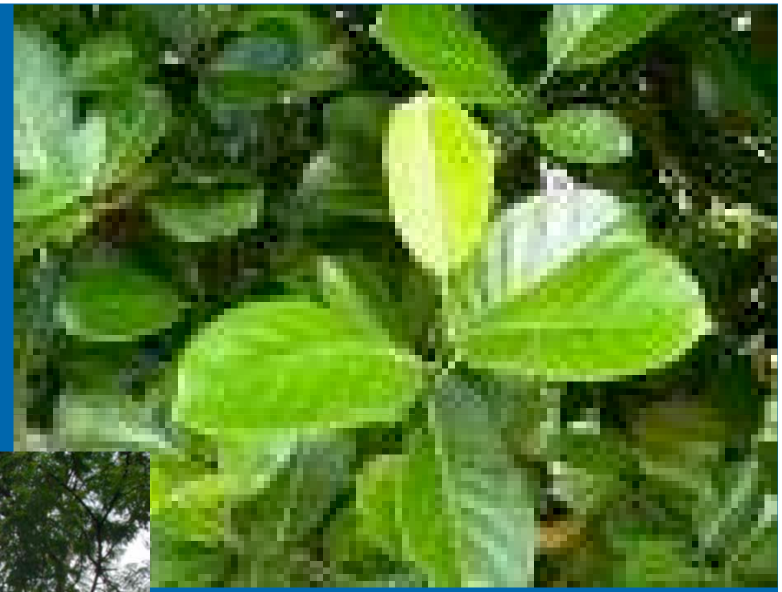
  Moringa oleifera,

  Calliandra calothyrsus,

  Gliricidia sepium.,

  Artocarpus heterophyllus
- Mix grass : TBP = 70 : 30
- Mix grass : TBP : by product = 70 : 20 : 10





Moringa oleifera

Artocarpus heterophyllus

Gliricidia sepium

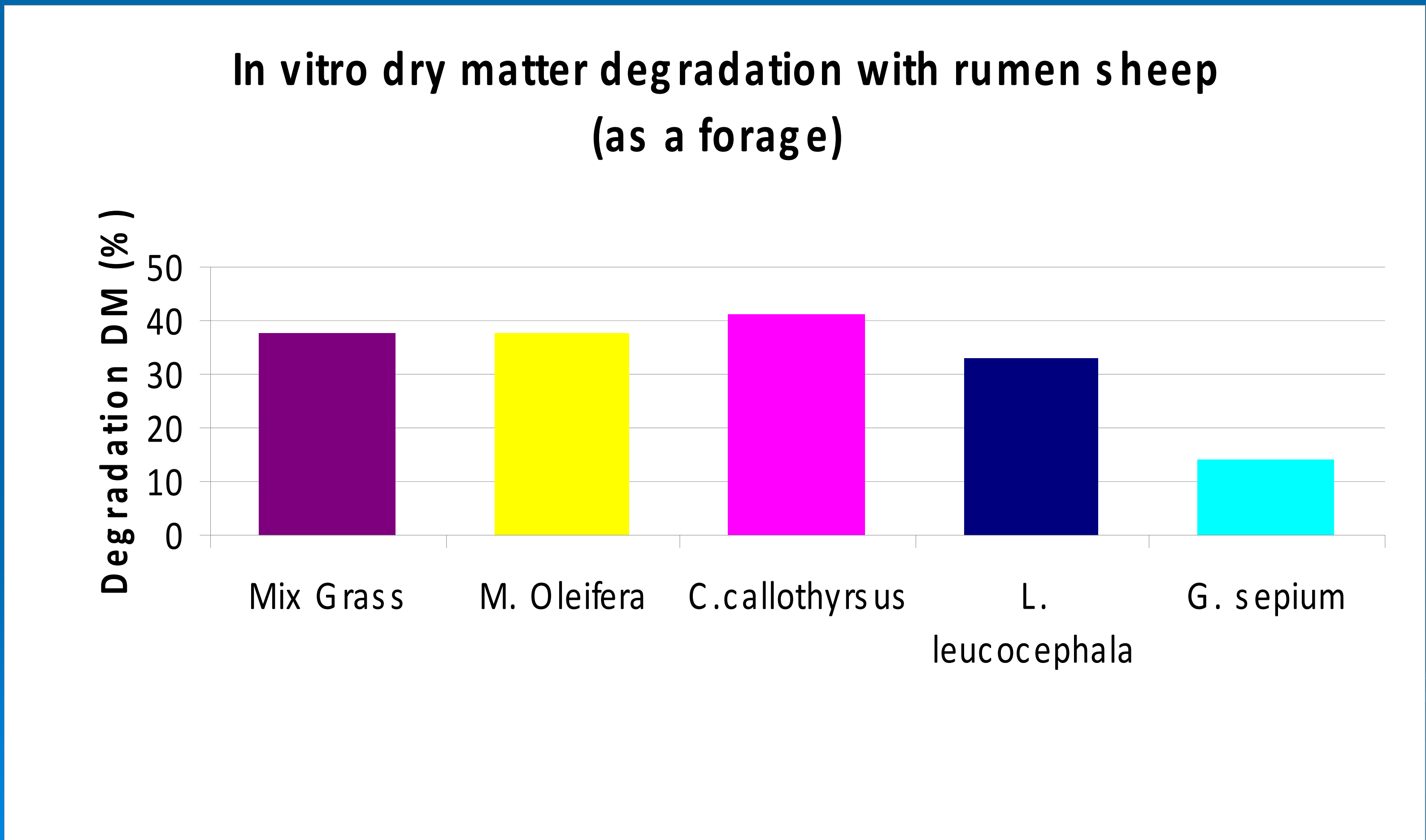
Callyandra calothyrus

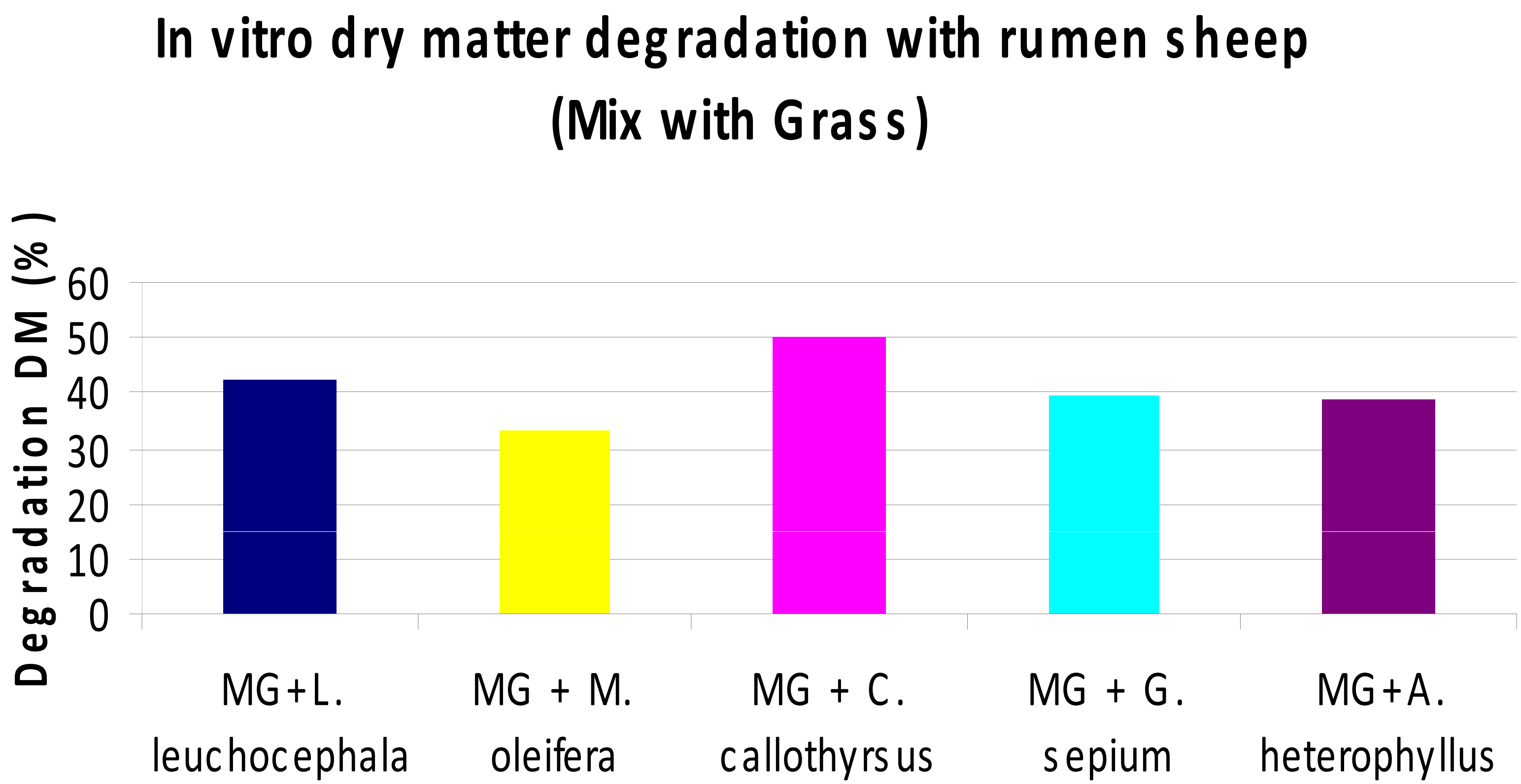
Leucaena leucocephala

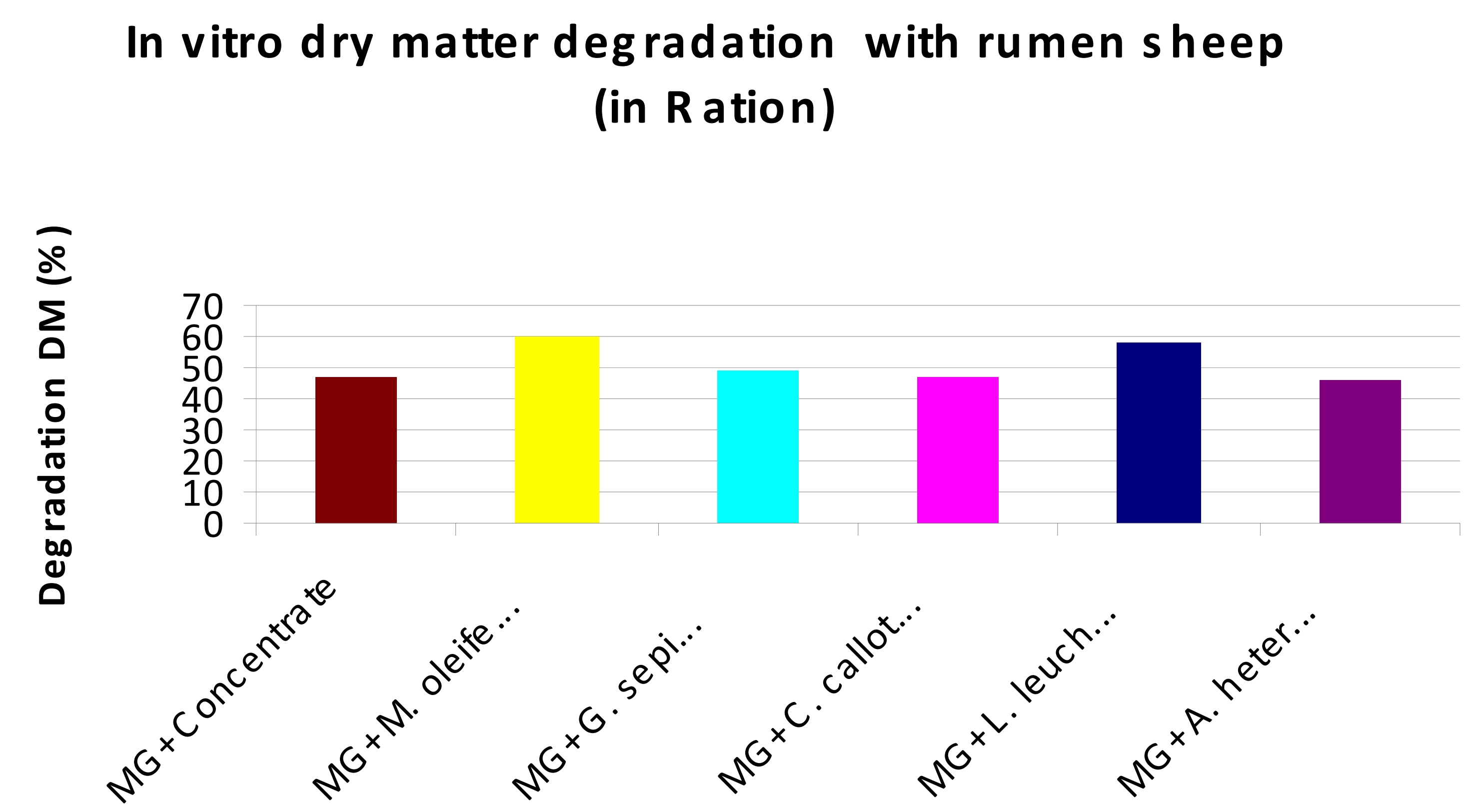
Two fistulated sheep as donor rumen fluid

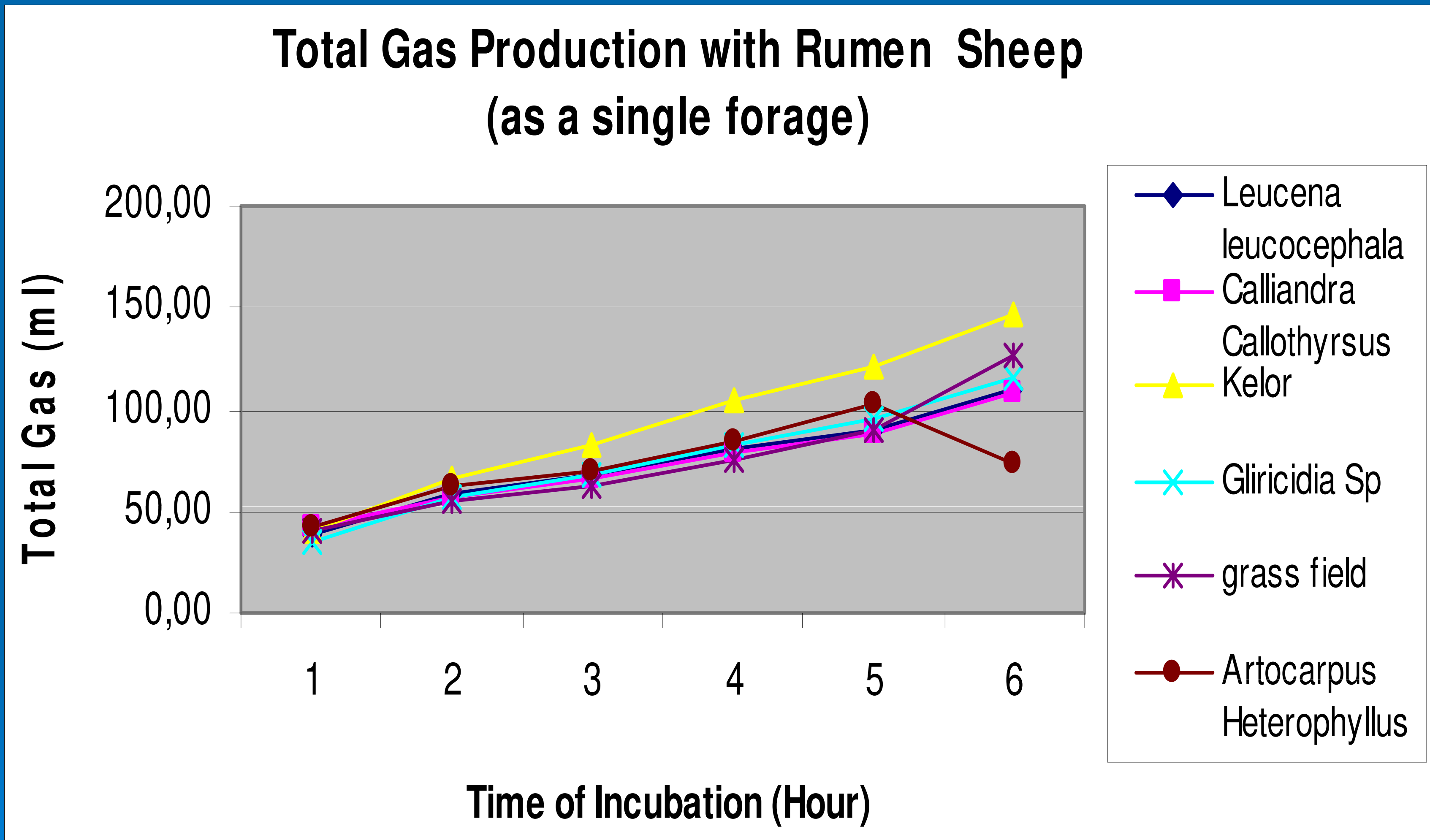
In vitro **DMD (**Baba et al., 2002)
and gas production rate (Close and Menke, 1996)

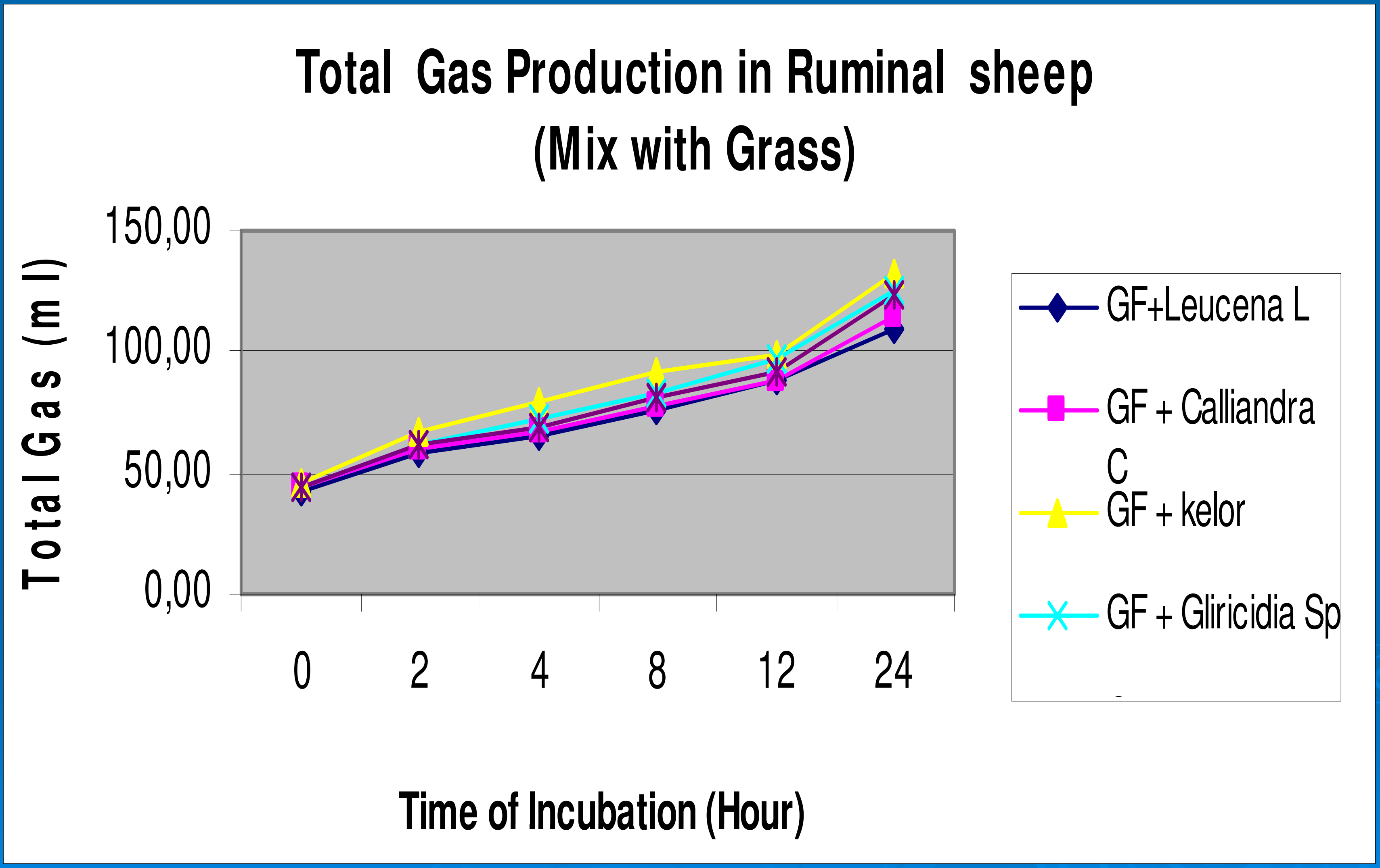
Result and Discussion



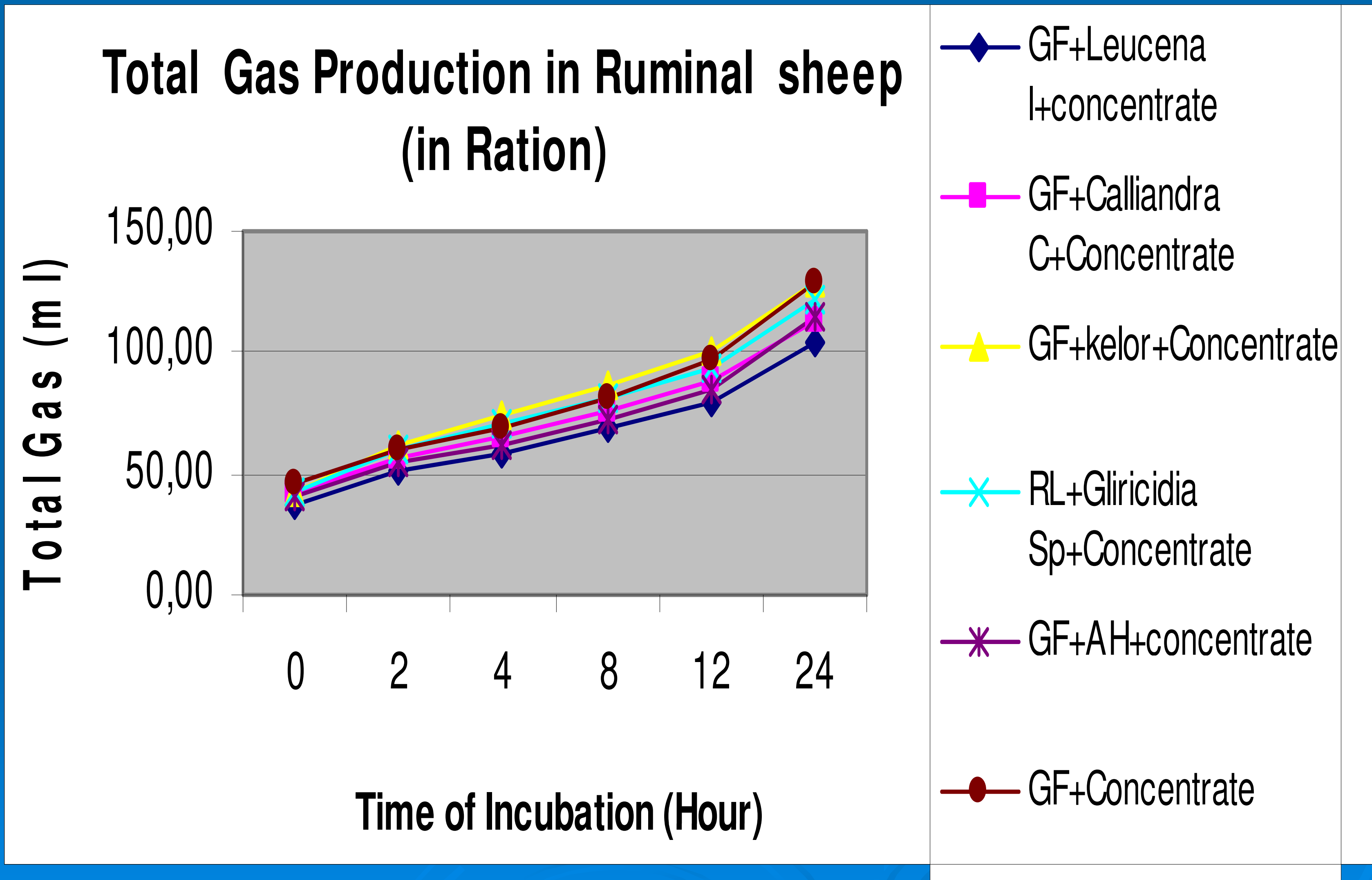

In vitro dry matter degradation with rumen sheep
(Mix with Grass)
Degradation DM (%)
60
50
40
30
20
10
0
MG+L. leuchocephala
MG + M. oleifera
MG + C. callothyrsus
MG + G. sepium
MG+A. heterophyllus


In vitro dry matter degradation with rumen sheep
(in Ration)
Degradation DM (%)
0
10
20
30
40
50
60
70
MG+Concentrate
MG+M. oleife...
MG+G. sepi...
MG+C. callot...
MG+L. leuch...
MG+A. heter...


Total Gas Production with Rumen Sheep
(as a single forage)
Total Gas (ml)
200,00
150,00
100,00
50,00
0,00
1
2
3
4
5
6
Time of Incubation (Hour)
Leucena leucocephala
Calliandra Callothyrsus
Kelor
Gliricidia Sp
grass field
Artocarpus Heterophyllus



Total Gas Production in Ruminal sheep
(Mix with Grass)
Total Gas (ml)
150,00
100,00
50,00
0,00
0
2
4
8
12
24
Time of Incubation (Hour)
GF+Leucena L
GF + Calliandra C
GF + kelor
GF + Gliricidia Sp


Total Gas Production in Ruminal sheep
(in Ration)
Total Gas (ml)
150,00
100,00
50,00
0,00
0
2
4
8
12
24
Time of Incubation (Hour)
GF+Leucena l+concentrate
GF+Calliandra C+Concentrate
GF+kelor+Concentrate
RL+Gliricidia Sp+Concentrate
GF+AH+concentrate
GF+Concentrate

Conclusion

- The highest DMD was found in M oleifera as ration, while the highest gas production was M oleifera as single forage

- *Moringa* leaves better be used as part of the ration for ruminants.

ACKNOWLEGEMENT

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Thank you

Further result

- In vivo experiment :

  Sheep fed with M.*oleifera* in the ration has good immune response with higher lymphocyte, nethrophyl and IgG compared to other forages