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ABBREVIATIONS

<u>Symbol</u>	<u>Abbreviation</u>
ACTH	Adino cortico trophic hormone
ATP	Adenosine triphosphate
°C	Centigrade
CF	Crude fiber
CL	Corpus leutum
CP	Crude protein
CR	Conception rate
dl	Deciliter (10^{-1} l)
DM	Dry matter
DO	Days open
EB	Energy balance
EDTA	Ethylene diamin tetra acetic acid
EE	Ether extract
fl	Fimetoliter(10^{-15} l)
FSH	Follicle stimulating hormone
GH	Growth hormone
Hb	Hemoglobin
Hct	Hematocrit
GE	Gemiza
Kg	Kilogram
LH	Lutenizing hormone
MCH	Mean corpuscular hemoglobin

MCHC	Mean corpuscular hemoglobin concentration
MCV	Mean corpuscular volume
MPV	Mean platelets volume
mg	Milligram (10^{-3} g)
μ g	Microgram (10^{-6} g)
μ IU	Micro international unit
ml	Milliliter (10^{-3} l)
MM	Mehalet Mousa
NEFA	Non-esterified fatty acids
NFE	Nitrogen free extract
ng	Nanogram (10^{-9} g)
NG	El-Nattaf El-Gedid
NK	El-Nattaf El-Kadim
P ₄	Progesterone
pg	Picogram (10^{-12} g)
PGF ₂ α	Prostaglandin F ₂ α
PGFM	Prostaglandin F metabolite
PPG	Propylene glycol
PUN	Plasma urea nitrogen
r.p.m.	Revolution per minute
RBC	Red blood cell count
SD	Seds
SLP	Short low peak
WBC	White blood cell count
VFA	Volatile fatty acids

V-SUMMARY

The study was divided into two parts, the first included statistical analysis of the reproductive data from records, while the second included an experimental work, also included blood chemical analysis and blood picture determination. These two parts aimed at investigating the reproductive efficiency and the ovarian activity during early postpartum period in Egyptian buffaloes.

1) **The first study:** Reproductive data were collected from four herds of research farms representing north and south of Delta, being El-Nattaf El-Kadim (NK), El-Nattaf El-Gedid (NG), Mehalet Mousa (MM) and Seds (SD). The four farms belonging to the Animal Production Research Institute (APRI).

A total of 3581 records for 594 buffalo cows, through the period from 1980 to 2003 were used. Data were statistically analyzed to study the effect of: calving season, parity and, farm on days open length.

2) **The second study** was carried out at Seds Research Station, located in south of Delta, Beni Swief Governorate, Egypt. Chemical analysis and hormonal assay were conducted in the Animal Production Research Institute (APRI), Agricultural Research Center, Ministry of

Agriculture, Giza, Egypt. An experimental work carried out to test the hypothesis, that daily oral drench with propylene glycol (450 ml/day) will increase plasma glucose and insulin levels, thereby stimulating ovarian function in early postpartum period (90 day postpartum). Twenty two buffalo cows (primiparous and multiparous) equally were assigned to treatment and control groups. Treated buffaloes were given daily oral doses of propylene glycol from day 7 to day 40 postpartum. Blood sampling was conducted twice weekly from 14 to 90 days postpartum. Progesterone, insulin, glucose and urea nitrogen were determined in blood plasma using radioimmunoassay and commercial kits. Complete blood picture analysis was also conducted once monthly during the first 3 months postpartum using automated cell counter. The two parts of this study were arranged with the Animal Production Department, Faculty of Agriculture, Cairo University, Giza, Egypt.

The obtained results could be summarized as follows:

- 1- The estimated days open length was 121 ± 8.9 day in the first study.
- 2- The season of calving showed highly significant ($P < 0.01$) effect on days open, as summer season calvers had the longest days open (126 ± 0.8 day), followed by spring

(120 ±0.7 day), autumn and winter seasons calvers (119.6± 0.5 day, and 119.8±0.8 day), respectively.

3- Parity had highly significant ($P<0.01$) effect on days open, first parity had the longest days open (133.2±0.6 day), decreased gradually with the advance in parity, till the eighth parity (110.3 ±1.08 day).

4- Farm had highly significant ($P<0.01$) effect on days open, as follow :

SD farm had longest days open (129.4±0.94 day) followed by, NK farm (120.2 ±0.54 day), NG farm (119.3 ±0.60 day) and MM farm (117.3 ±0.68 day).

5- The interval from calving to the first peak of P_4 concentration was 18.2±2.9 day in treated group, and 20.8±2.6 day in control group.

6- Progesterone concentration on day 14 postpartum was 1.04±0.16 ng/ml in treated group, and 0.56±0.3 ng/ml in control group (at the beginning of blood sampling).

7- Short low peak cycles mean length was 9.0±0.8 day for treated group, and 8.2±0.6 day for control, progesterone peak concentration was 1.58±0.2ng/ml for treated group, and 1.43±0.2ng/ml for control.

- 8- Ovulatory cycles mean length was 23.8 ± 1.0 day for treated group, and 21.7 ± 0.6 day in control, the first progesterone peak concentration was significantly higher in treated group (5.07 ± 0.61 ng/ml) than control (2.8 ± 0.58 ng/ml).
- 9- The mean interval from calving to first postpartum ovulation was 28.4 ± 6.3 day in treated group, and 36.4 ± 4.0 day in control, based on plasma progesterone level in the second study.
- 10- Days open period was 63.5 ± 6.1 day in treated group, and 71.8 ± 5.4 day in control.
- 11- The overall average of conception rate was similar in both experimental groups (91%) at day 120 postpartum.
- 12- The overall mean of glucose concentration was significantly ($P < 0.05$) higher in treated group (63.06 ± 0.9 mg/dl) than in control (60.16 ± 1.2 mg/dl).
- 13- The overall mean of insulin levels was insignificantly higher in treated group ($6.75 \pm 0.4 \mu\text{IU/ml}$) than in control ($5.46 \pm 0.4 \mu\text{IU/ml}$).
- 14- Plasma urea nitrogen mean was insignificantly lower in the treated group (35.98 ± 0.6 mg/dl) than in the control group (37.22 ± 0.7 mg/dl).

- 15- The hematological parameters fall in the normal range that reported for buffaloes, and didn't differ significantly among groups, the hematological parameters were almost the same in both experimental groups, except for leucocytes.
- 16- The differential count of leucocytes was significantly different between the control and the treated groups, where the lymphocytes were significantly higher in treated buffaloes, while neutrophils were significantly higher in control buffaloes, but monocytes and eosinophils values were very close among groups.

VI- CONCLUSION

It could be concluded from the results of this study that oral drenching of propylene glycol increased plasma concentrations of glucose. Also, increased plasma levels of progesterone. The results indicate that administration of propylene glycol may improve ovarian function of buffaloes in early postpartum period.

The dose-response of cost-effective therapeutic treatment of early postpartum buffalo cows, and different methods of PPG delivery, remains to be investigated.