AMPLIGO® INSECTICIDE INDUCES INJURIES ON THE TESTES OF RABBIT ORYCTOLAGUS CUNICULUS: ALLEVIATING EFFECTS OF VITAMINS C AND E (ASCORBATE/α-TOCOPHEROL)

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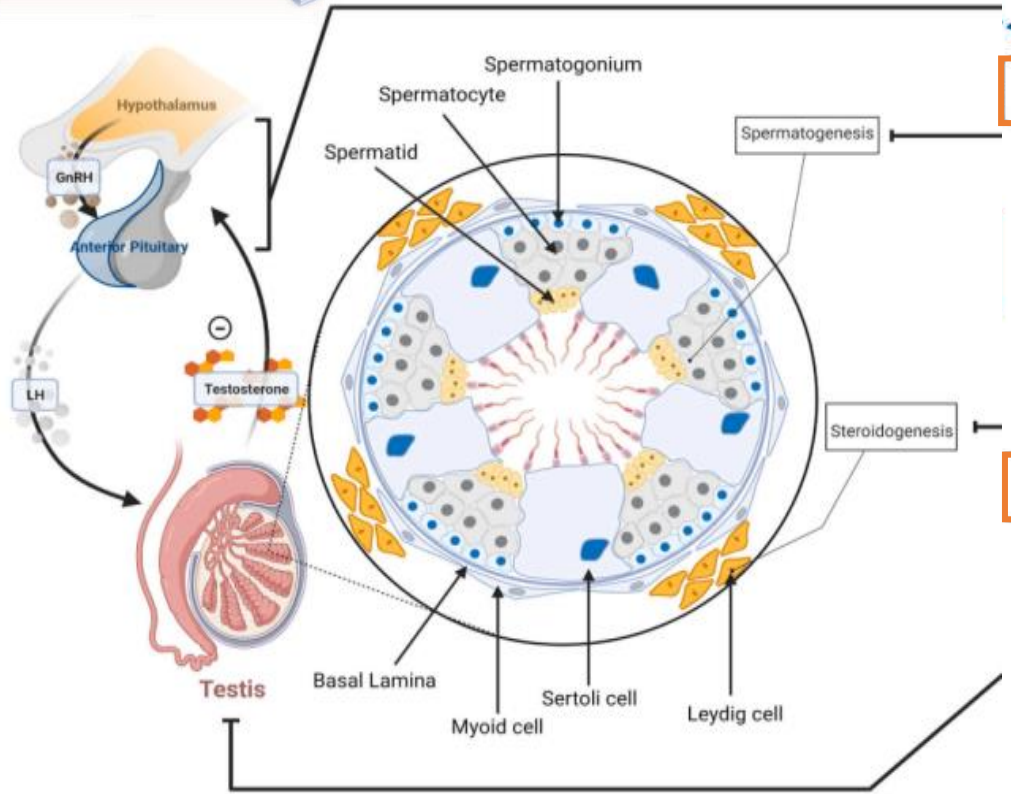
INTRODUCTION

EDCs on hypothalamic–pituitary–gonadal (HPG) axis

ENVIRONMENTAL FACTORS

Endocrine-disrupting Chemicals

Pesticides (Synthetic pyrethroids)



- **EDCs**
  - Dioxins/dioxin-like compounds
  - Heavy metal
  - Phthalates
  - ...
- **Life styles**
  - Smoking
  - Alcohol
  - Diet
    - Dietary Bias?
    - High Energy Diet?
  - Temperture
  - Radiation
    - Cell Phone?
    - WiFi?
  - .. Stress

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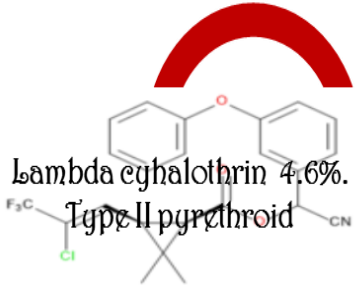
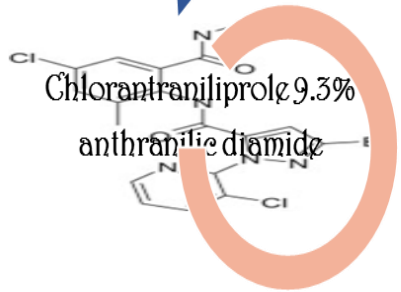
The main aim of this study



Lambda cyhalothrin 4.6%.
Type II pyrethroid

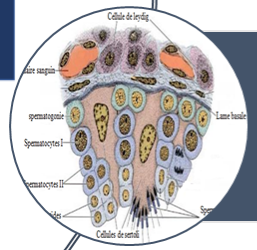
INSECTICIDE
Ampligo® 150 ZC" (AP)



Chlorantraniliprole 9.3%
anthranilic diamide

(1)

- to assess the toxic effect of a new insecticide formulation Ampligo ® on rabbit's testicle histology and endocrine testicular functions



(2)

- investigate the Protective effect of vitamins C and E combination against ampligo ® reproductive toxicity in male rabbit .

VITAMINES
C & E

Hormonal assays

Plama samples/ Electrochemiluminescence immunoassay (ECLIA) : LH ; FSH ; Testosterone

Cobas e 411

Roche

Collection of samples

Histological preparation/ Morphometrycal analysis

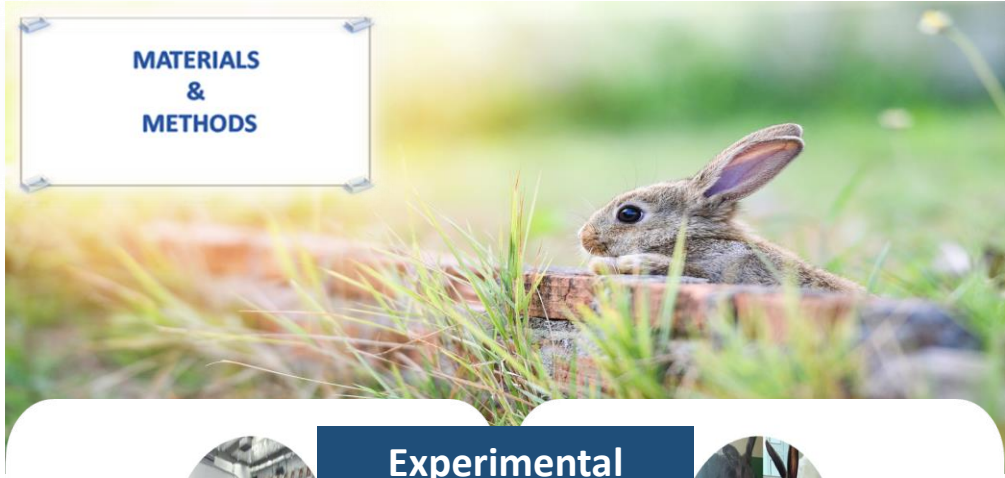
Hematoxylin and eosin).

Diameter of the area of seminiferous tubules,

Epithelium height

Luminal diameter of the seminiferous tubule

MATERIALS & METHODS



Experimental

20 male adults rabbits

"Oryctolagus cunuculus" (2.5 – 2.9 Kg)

- *Technical Breeding Institute (ITELV, Baba-Ali*
- *CRD Saidal Algeria*

4 groups

- *(1) control group*
- *(2) CE group: Vit E 200 mg/kg + Vitamin C 200 mg/kg*
- *(3) Ampligo ® group (AP): (12.24 mg/kg)*
- *(4) group AP+CE & vitamins C and E (12h after the*

RESULTS & DISCUSSION

1.

• Effects of treatments on food intake, water consumption, body and Testes and epididymis weights

Groups / Period	CONTROL	CE	AP	AP+CE
Initial BW (Kg)	2.70 ± 0.02	2.65 ± 0.03	2.61 ± 0.06	2.83 ± 0.02
Final BW (Kg)	3.04 ± 0.02	2.99 ± 0.28	**2.81 ± 0.05***	3.16 ± 0.34
% BWG	3,38	3,45	**1,99***	3,29
Absolute Testis + epididymis Weight (g)	5.32 ± 0.03	4.99 ± 0.41	**4.32 ± 0.16***	6.1 ± 0.2
Relative Testis + epididymis Weight	0.18 ± 0.01	0.17 ± 0.02	**0.13 ± 0.01***	0.19 ±0.02
Average feed intake (g / rabbit)				
Acclimatation	98.2 ± 5.1	97.4 ± 7.7	86.3 ± 4.0	98.7 ± 6.3
Experimentation	164.0 ± 4.6	185.5 ± 10.1	**159.9 ± 13.0***	176.4 ± 6.5
Average water consumption (ml / rabbit)				
Acclimatation	31.2 ± 0.7	30.8 ± 2.6	31.6 ± 1.5	34.3 ± 1.6
Experimentation	138.2 ± 5.1	117.2 ± 6.9	**100.08±8.08***	106.8±7.33

RESULTS & DISCUSSION

2.

•Effects of treatments on plasma hormonal parameters and morphometrycal parameters

Groups	Control	CE	AP	AP + CE
	(1) Hormonal Parameters			
FSH (ng/ml)	0.33± 0.00	0.35±0.01	0.31±0.00	0.29±0.86
LH (ng/ml)	0.21+0.01	0.23+0.03	0.24+0.07	0.21+0.00
Testosterone (ng/ml)	2.91+0.8	13.36+0.23	**1.84+ 0.25****	**5.66+5.42***
	(1) Histomorphometric Parameters of seminiferous tubules			
Total area (µm²)	79.85.x10^3±15.2x10^2	63.9x10^3 .±17.4 x10^2	**45.91x10^3 ± 16.5 x10^2***	52.73 x10^3 ± 21.1 x10^2
EH (µm)	77.5 ± 12.4	79.0 ± 11.2	**49.2 ± 7.91***	51.4 ± 6.93
LD (µm)	112..9 ± 24.4	101..8 ± 19.3	99..0 ± 18.7	95..6 ± 17.5
EH / LD	0.68 ± 0.2	0.77 ± 0.1	**0.49 ± 0.1***	0.53 ± 0.1
LD/ EH	1.45 ± 0.3	1.28 ± 0.2	**2.01 ± 0.4***	1.85 ± 0.4

RESULTS
&
DISCUSSION

2.

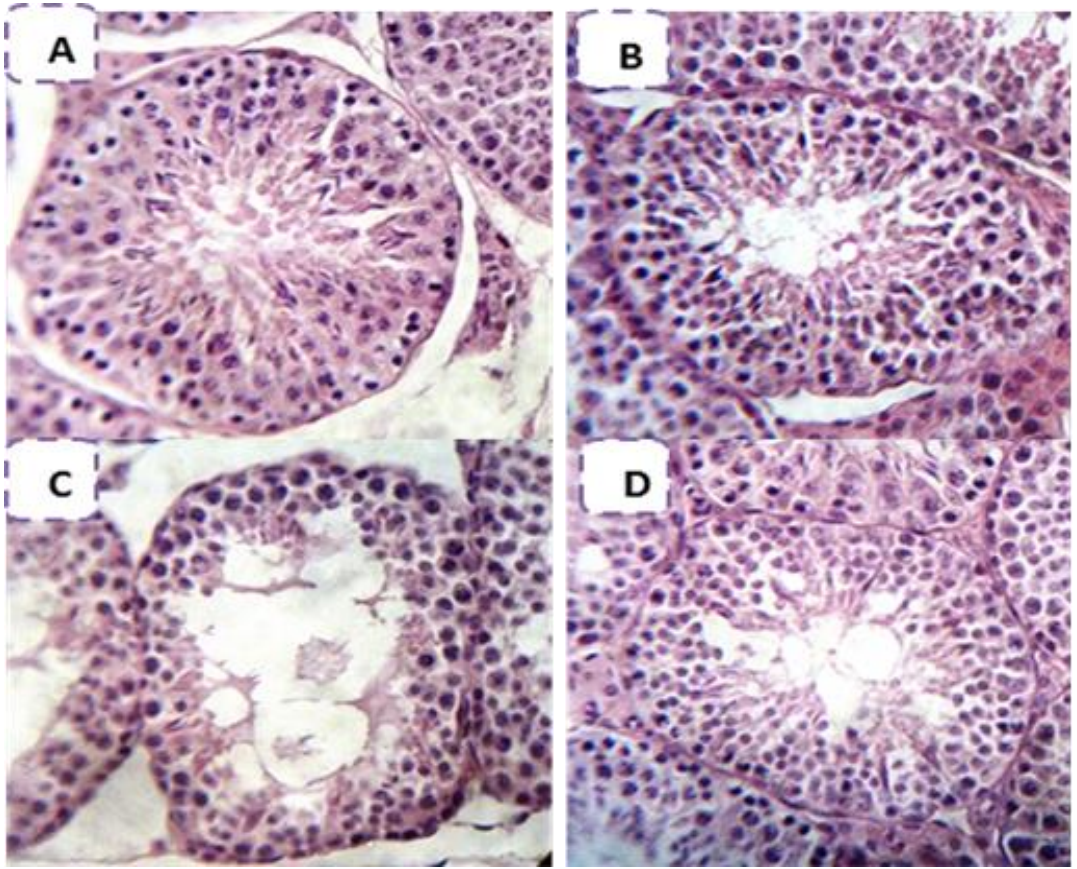
•Effect of treatments on testis histological structure

Histology of Testis
(Hematoxylin Eosin stain, X 400)

(A and B) the histoarchitecture of the testis is intact in control and CE rabbits.

(C) Rabbits treated with AP show disorganization of seminiferous tubules and degeneration of the epithelium and congestion.

C and D) Rabbits treated AP+ CE

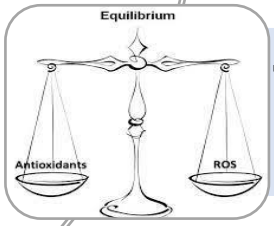


CONCLUSION

AMPLIGO® INSECTICIDE TOXICITY

- TESTES OF RABBIT

Protective effect of vitamins C and E combination



The use of the antioxydant as fertility enhancer in the management of pesticide-derived male infertility