

# Immune Organs Proliferation Efficacy of Ingredient of PHYTOCEE® in Broilers : *Withania somnifera* (Ashwagandha)

## OBJECTIVE

To study the effect of dietary supplementation with of *Withania somnifera* root powder (WSR) in chicken experimentally infected with infectious bursal disease virus (IBDV).

## MATERIALS AND METHODS

5-day-old chicks (n=48) of either sex, reared individually under cage system. The test comprised of a two-factorial design (n=12) as under:

WS	Virus
-	+
-	Control (C)
+	<i>Withania somnifera</i> supplemented (WS)

Chicks at 1 week of age were randomly assigned to one of the four groups viz. Control (C), virus infected (V), *Withania somnifera* supplemented (WS), and *Withania somnifera* supplemented and virus infected (WV). Birds of groups WS and WV started to receive *Withania somnifera* root powder (WSR) at 1% of the feed. At 4 weeks of age, birds of groups V and WV received a total of 0.25 mL viral suspension ( $1.7 \times 10^4$  TCID<sub>50</sub> of IBDV) through oral, intraocular, intranasal, and intra-cloacal routes; the birds of groups C and WS were mock infected with buffered saline. Four birds from each group were randomly selected and exsanguinated on days 3, 5, and 7 post-infections. Bursal and splenic indices were determined and expressed as a percent of body weight.

## RESULTS

#### Organ weight indices, bursal lesion score, and phagocytic indices across groups on days 3, 5, and 7 post-infection

Group/DPI	Mean $\pm$ S.E.				
	Organ weight index		Bursal lesion score	Phagocytic index (% NBT-positive cells)	
	Bursa	Spleen			
C	3	1.35 $\pm$ 0.03	0.81 $\pm$ 0.06	0	-
	5	1.33 $\pm$ 0.05	0.81 $\pm$ 0.04	0	-
	7	1.32 $\pm$ 0.05	0.79 $\pm$ 0.11	0	26.667 $\pm$ 2.333
V	3	1.42 $\pm$ 0.05 <sup>A</sup>	0.87 $\pm$ 0.05	1.00 $\pm$ 0.00	-
	5	1.19 $\pm$ 0.10 <sup>A,B</sup>	0.93 $\pm$ 0.05	1.67 $\pm$ 0.33	-
	7	0.99 $\pm$ 0.05 <sup>B</sup>	0.96 $\pm$ 0.04	3.67 $\pm$ 0.33	21.667 $\pm$ 2.333
WS	3	1.34 $\pm$ 0.03	0.74 $\pm$ 0.02	0	-
	5	1.35 $\pm$ 0.04	0.75 $\pm$ 0.04	0	-
	7	1.32 $\pm$ 0.03	0.69 $\pm$ 0.04	0	32.000 $\pm$ 2.646
WV	3	1.53 $\pm$ 0.21	0.93 $\pm$ 0.22	1.33 $\pm$ 0.33	-
	5	1.42 $\pm$ 0.04	0.85 $\pm$ 0.06	1.33 $\pm$ 0.33	-
	7	1.32 $\pm$ 0.06	0.71 $\pm$ 0.06	2.33 $\pm$ 0.33	26.000 $\pm$ 2.309

Phagocytic index and relative viral load were assessed only on day 7 post-infection; Values bearing different upper case superscript letter differ significantly within the group.

## OUTCOME

*Withania somnifera* root powder supplementation improved bursal weight index. These findings implied that supplementation of *Withania somnifera* in broilers could play a pivotal role in proliferation of immune organs.

## Reference:

Ganguly B, Mrigesh M, Chauhan P et al. Dietary supplementation with *Withania somnifera* root powder ameliorates experimentally induced Infectious Bursal Disease in chicken. *Trop Anim Health Prod.* 2020;52(3):1195-1206.