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RESEARCH PAPER

EFFECT OF ADMINISTRATION GARDEN CRESS SEEDS ON HEMATOLOGICAL AND IMMUNOLOGICAL PROFILE OF CHICKS

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ABSTRACT

Garden cress is useful generally very common used medicine since Vedic time in India, another name is Garden Cress, poor's Pepper, Halim or haloo in common language. Present study was conducted to investigate the haematological and immunological parameter of chicks administered with *Lepidium Sativum*. Chicks were divided into four groups equally namely GC-0, GC-1, LS-2, GC-3. Group GC-0 was kept as control, while chicks in group GC-1, GC-2, GC-3 were administered *Lepidium Sativum* in their feed at the doses of 2, 5, 10 mg/kg BW for forty days daily. Total Body weight gain, feed consumption, hematological and immunological parameter were studied and analyzed at regular interval of experiment. Total body mass, feed intake, and PCV and haemoglobin level were show statistical significant increase in treatment groups. Non significant values were noted in the TLC and neutrophils count and monocyte in all treatment groups as compared to control.

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INTRODUCTION

Lepidium Sativum is very useful medicinal seeds also known as garden cress (GC). GC seeds an ancient remedial herb comes under the family Brassicaceae. This plant is produced and also found as natural herb in many areas of India. GC seeds is very common conventional ayurvedic medicine as well as home remedies in various part of country since long times in India (1). GC seed are brownish red in colour, oval in shape pointed at one end and conical at one end and with smooth surface. GC cultivated as a common plant species many region of India. Seeds posses' high nutritional advantages posses linolenic acid contributes 18-24% approximate 34% of total fat (2). Oleic and linolenic acid is the primary fatty acids present in GC seed oil approximate 29.3 wt% to 30.6wt% respectively as well as high concentration of vitamin E. Sitosterol, campesterol and avenasterol are basic phytosterols present in GC seed (3). Post Natal period is very crucial for every women Gc seeds are incorporate in the diet of lactating women which in turn stimulate milk secretion (4) It also contain high percentage of calcium and Iron also, administration of these seeds are beneficial in curing certain diseases.

The seeds are laxative, ointment, aphrodisiac, rubefacient, carminative, lectogenic, emmenagogue (5). GC seeds also show antimicrobial and anti pathogenic activity (6) Keeping in

view the value of this seeds present study was designed to examine its effect on hemato-immunological profile of the chicks.

Experimental Design

Day old chicks were procured from local hatcheries. Chicks were divided into four equal groups equally namely GC-0, GC-1, GC-2 and GC-3. Group GC-0 was treated as control while group GC-1, GC-2 and GC-3 were treated with *Lepidium Sativum* at the concentration of 2mg/kg BW, 5mg/kg BW and 10mg/kgBW respectively with their feed daily. Garden cress seeds procured from Agriculture College, Indore. Garden cress seeds were dried and hand chosen to remove crumpled, rotten moldy seeds and pebbles. GC seeds were administrated to chicks from day one of the age and lasted till the final day of experiment. Change body weight (gm) was determined weekly. At the age of 7th day birds were vaccinated with Marek's Disease Bivalent vaccine (Meril, Singapore) birds were vaccinated with New Castle disease Lasota strain vaccine (Indovax, Gurgaon, India) through intraocular route.

On the 14th day birds were also vaccinated against Infectious Bursal disease (IBD) using (Georgia strain, Indovax). 6 chicks were selected randomly from each group for determination of biochemical parameter and blood (approx 2ml) collected in EDTA vials from jugular vein. hemoglobin (Hb), packed cell

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volume (PCV), Total leucocytes count (TLC), lymphocyte, eosinophil, monocyte and neutrophils were estimated using following method given by Schalm's veterinary hematology using blood samples(7). The data were analyzed using (student t- test) SPSS 15 and (Data expressed Mean±S.D.)

Table 1 Mean values of Hematological parameters, feed intake, body weight in chicks feeding with different dose of *lepidium sativum*

| Parameters | GC-0 Grp | GC-1 | GC-2 | GC-3 |
|-------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Feed Intake (gm) | 2665.26±0.66 ^b | 3022.08±0.77 ^a | 3275.21±0.14 ^a | 3184.43±0.23 ^a |
| Body Weight (gm) | 137.36±0.21 ^b | 148.43±0.87 ^a | 164.45±0.83 ^a | 161.32±0.71 ^a |
| Hb(g/dl) | 7.74±0.22 ^b | 10.88±0.41 ^a | 11.21±0.35 ^a | 11.98±0.16 ^a |
| PCV(%) | 24.96±0.17 ^b | 29.01±0.04 ^a | 28.34±0.11 ^a | 27.98±0.48 ^a |
| TLC(×10 ⁹ cells/L) | 21.48±0.01 ^b | 22.82±0.02 ^a | 23.24±0.09 ^a | 22.76±0.62 ^a |
| Neutrophils(%) | 39.34±0.26 | 35.34±0.72 | 31.87±0.57 | 37.45±0.78 |
| Lymphocytes(%) | 51.75±0.55 | 51.36±0.05 | 59.53±0.66 | 53.56±0.45 |
| Eosinophils(%) | 4.14±0.88 | 4.87±0.36 | 3.44±0.23 | 4.88±0.14 |
| Monocytes(%) | 3.45±0.99 | 3.65±0.32 | 2.98±0.16 | 2.94±0.59 |

Values (Mean±SD) bearing different superscript in a row differ significantly (P<0.01 and P<0.05)

RESULT AND DISCUSSION

Feed consumption and body weight (gm) gain of the birds treated with different concentration of L Sativum have been presented in table 1, treated groups showed significant higher feed intake value as compare to control. The highest value recorded in group GC-2 for feed consumption as well as body weight gain. Highest value recorded was (164±0.83gms) for group GC-2 which is significantly higher than controls (137.36±0.36gms).

This increase in the body weight of chick could be correlated to the increase in feed intake of the treated birds. A significant difference was noted in the Hb concentration and PCV value Group GC-1and GC-2 shows highest value. Sarkar and Ghosh, (8) observed that increase in Hb level and weight gain in lactating rats fed with GC seeds. Seeds contains very high amount of iron and folic acid content, which in turn improve haemoglobin level of rats and prevent from anaemia.

Sarkar and Ghosh 2012 reported that there was significantly higher weight gain in the treated pups whose lactating mothers were fed garden cress, finding proves galactogogue property of GC seeds (9). The seeds are also used to compensate vitamin C deficiency and act as immunomodulator (10). Non-Significantly higher value of mean TLC was observed in the group GC-2. All treated groups shows significantly higher value of feed consumption and total body weight gain in all GC exposed groups. The literature about effect of GC on chicks is scare. Exposure of GC seed or its doses which has been taken in experiment not show any lethality or toxicity in present study. Eosinophil count come in normal range in bronchial asthma patient after exposure of GC seeds (11).

CONCLUSION

Lepidium sativum is very reliable, authentic herb rich source of roughage, protein, mineral, vitamin E, iron, calcium. GC seeds contain phenolic compound which might show antioxidant quality of seeds. In present study GC seeds improve body weight, Hb content, PCV and TLC of chicks. Additionally, it improved the total body weight, feed intake and improve immunity status of birds. Keeping in view the important effect of this plant, further studies might be launched to recommend its use in poultry to enhance its productivity.

References

1. Mali RG, Mahajan SG, Mehta AA,. *Lepidium Sativum*(Garden Cress): A review of contemporary literature and medicinal properties. *Oriental Phar Exper Med* 2007: 7(4):331-335.
2. Diwakar BT, Dutta PK, Lokesh BR, Naidu KA,. Physicochemical properties garden cress (*Lepidium sativum*) seed oil. *J Am Oil Chem Soc* 2010: 87:539–548.
3. Bryan RM, Shailesh NS, Jill KW, Steven FV and Roque LE,. Composition and physical properties of cress (*Lepidium sativum* L.) and field pennycress (*Thlaspi arvense* L.) oils. *Industrial Crops and Products* 2009: (30): 199–205.
4. Sahsrabudde MB, De NN,.. The Wealth of India, Raw Materials. Publication and information Directorate, CSIR, New Delhi. 1943: Vol.VI, p. 71-73, 1962. *Current Sci*, 12, 23-24
5. Nadkarni KM, Nadkarni AK,. *Lepidium sativum* Linn, In; The Indian Materia medica with ayurvedic, unani and home remedies, Bombay, India; *Popular prakashan* 1954: (3): 736-737.
6. SIY Adam, SAM Salih and WS Abdelgadir. *Asian Journal of Medical Sciences*, 2011: 3(6), 261-266
7. Schalm's Veterinary hematology VI edition. Edited by Douglas Weiss and K.Jane Wardrop, Willey- Black Well, A Jhon Wiley and Sons Ltd Publication 2121 State Avenue, Ames, Iowa 2010: 50014-8300 USA.
8. Sarkar S and Ghosh I,. Galactogogue effect of Garden Cress Seeds on Lactating Rats, *Asian J. Exp. Sci*, 2011:25(2): 87- 92.
9. Sarkar S and Ghosh I,. *Lepidium sativum* seeds fed to lactating rats as galactogogue and its effect on the weight gain of new born rat's up to twenty one days. *Ind J Sci Cruiser*, 2012: 26(3): 24-28
10. Fleming T,. PDR for Herbal Medicines, 1st edn. Medical Economics 393 Company, Inc.: Montvale, 1998: 933–934.
11. Paranjape Archana N, Metha Anita A,. *Iranian Journal Of Pharmacology & Therapeutics* 2006: (5):55-59.