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RESEARCH PAPER

Dried *Azolla* as a nutritionally rich cost effective and immuno-modulatory feed supplement for broilers

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ABSTRACT

Aquatic plant species offer a great potential than tree leaves as a source of protein for animals. Of these species, the water fern, *Azolla* is perhaps the most promising from the point of view of ease of cultivation, productivity and nutritive value. A study was conducted with 120 Vencobb broiler chicks to explore the potential of dried *Azolla* hybrid Rong-Ping as a feed supplement in concentrate feed. Supplementation of the concentrate feed with dried *Azolla* at 7.5% resulted in 2.6% increase in body weight (1.99 kg) per head over control (1.93). The feed consumption was found to be lower in birds fed with the feed containing 7.5% *Azolla*. The antibody tire value against Ranikette virus was higher in birds that were administered with dried *Azolla* at 10% with a mean value of 32 followed by 21 in the birds which took dried *Azolla* at 7.5%.

Key words : Dried *Azolla,* Feed supplement, Immuno, Modulatory effect, Saving in feed cost, Poultry birds

Livestock becomes an essential component to small farmers since it supplies low cost inputs like cow dung /urine besides fetching monetary advantages over sale of livestock. One of the major constraints in maintaining the livestock is the non-availability of fodder due to decrease in area under forest and grassland and also the introduction of high yielding dwarf crop varieties which in turn force the farmers to depend completely on concentrate feed that incurs high cost.

It would be highly beneficial to the farmers if they opt for an economic feed supplement / substitute that could be produced on-farm itself. *Azolla,* which is a free floating fern is a suitable choice as livestock and poultry feed to overcome this situation as it harbors many advantages. *Azolla* is rich in protein (25 - 35%), minerals (10 - 15%), amino acids (7 - 10%), vitamins and growth promoting intermediates. Its nutrient composition (Table 1) makes it an efficient and ideal feed supplement for livestock, poultry, pigs and fish (Lumpkin, 1984). To optimize the level of supplementing concentrate feed with dried *Azolla* and to have an idea about the resistance confers against viral disease, a trial was conducted to investigate the performance of broilers at different dietary level of *Azolla.*

Table 1 : Chemical composition of *Azolla*

Sr. No.	Constituents	Percentage
1.	Crude Protein	26.4%
2.	Ether extract	3.42 %
3.	Crude fibre	15.96%
4.	Nitrogen free extract	41.06%
5.	Total ash	14.86

MATERIALS AND METHODS

Layout of the experiment and preparation of experimental diet:

The experiment was conducted at Tamil Nadu Agricultural University (TNAU) Poultry Farm, Coimbatore. With one day old Vencobb broiler chicks purchased from Valarmathi Farms (P) Ltd., Coimbatore, the experiment was initiated and continued up to 42 days of age. 120 chicks were randomly divided and distributed in four dietary treatment groups (T_1, T_2, T_3, and T_4) with three replications in each group (T_1 control, T_2 5% *Azolla*, T_3 7.5% *Azolla*, T_4 10% *Azolla*). Each treatment consisted of 30 chicks with 10 chicks in each replication. The layout of the experiment is shown in Table 2 and the

Table 2 : Layout of the experiment

Treatments	Number of birds		
	R_1	R_2	R_3
T_1	10	10	10
T_2	10	10	10
T_3	10	10	10
T_4	10	10	10
Grand total			120

where
T_1 - Control diet without dried *Azolla*
T_2 - Diet supplemented with 5% dired *Azolla*
T_3 - Diet supplemented with 7.5% dried *Azolla*
T_4 - Diet supplemented with 10 % dried *Azolla*