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**Adarsh J**

Department of Animal Nutrition,  
Veterinary College, Karnataka  
Veterinary Animal and Fisheries  
Sciences University, Bengaluru,  
Karnataka, India

**Suma N**

Department of Animal Nutrition,  
Veterinary College, Karnataka  
Veterinary Animal and Fisheries  
Sciences University, Bengaluru,  
Karnataka, India

**Vivek M Patil**

Department of LPM, Veterinary  
College, Bengaluru, Karnataka, India

**Naveen Kumar S**

Department of AGB, Veterinary  
College, Bengaluru, Karnataka, India

**Mamatha HS**

Department of Food Science and  
Nutrition, UAS, GKVK, Bangalore,  
Karnataka, India

**Navyashree G**

Department of Animal Nutrition,  
Veterinary College, Karnataka  
Veterinary Animal and Fisheries  
Sciences University, Bengaluru,  
Karnataka, India

**Sravani P**

Department of Animal Nutrition,  
Veterinary College, Karnataka  
Veterinary Animal and Fisheries  
Sciences University, Bengaluru,  
Karnataka, India

**Rashmi KM**

Department of Animal Nutrition,  
Veterinary College, Karnataka  
Veterinary Animal and Fisheries  
Sciences University, Bengaluru,  
Karnataka, India

**Corresponding Author:**

**Suma N**

Department of Animal Nutrition,  
Veterinary College, Karnataka  
Veterinary Animal and Fisheries  
Sciences University, Bengaluru,  
Karnataka, India

## Survivability pattern in broilers fed with Jamun (*Syzygium cumini*) seeds as a nonconventional source

**Adarsh J, Suma N, Vivek M Patil, Naveen Kumar S, Mamatha HS, Navyashree G, Sravani P and Rashmi KM**

### Abstract

Two hundred and forty day old chicks were randomly distributed into four groups of 5 replicates and offered four isonitrogenous and isocalorific diets for 42 days. Test diets were prepared with inclusion of nonconventional feed Jamun (*Syzygium cumini*) seeds at 0.5%, 1% and 1.5%, respectively in T2, T3 and T4 groups. Diet without Jamun seeds served as the control diet. All standard practices were adopted while conducting the trial. Survivability patterns were recorded in all groups of birds throughout the trial. Results indicated no significant difference ( $p>0.05$ ) observed in livability percent among all the treatment groups. Therefore the study concluded that inclusion of 1.5% of nonconventional feed Jamun in broilers diet.

**Keywords:** Isocalorific, isonitrogenous, nonconventional feed, Jamun

### Introduction

Java plum is mainly used for the consumption of Juicy pulp as ordinary fruit or used for the production of java plum jam. However, the Java plum bean left after the removal of the pulp is of little importance and most of the time discarded as waste (Modi *et al.*, 2010) [6].

Concerning the feeding, Java plum beans face little competition from humans and other animals. These beans have the potential to be widely produced in India because unlike other fruit trees, Java Plum trees thrive very well in a variety of soils that include loam, marl, sandy, and calcareous soils (Morton, 1987) [7].

Meeting the consumer's demand is a constant challenge for the animal food industry. Day by day, consumers interest for functional foods is increasing (Raquel and Maria, 2012). Some specific compounds in food are correlated to the functionality of that food. Phytochemicals are the biologically active compounds that occur naturally in plants and that protect human against diseases (Sehwag and Das, 2014) [12]. These are being employed as medicine since time immemorial and there has been a recent resurgence in the use of plant parts as nutritional supplements even in animals at low levels.

A major gap exists between the demand and supply of conventional feed resources for feeding livestock in the world. To manage this, it is essential to increase the availability of conventional feed resources for livestock production and management systems. Other method is to exploit the use of non-conventional feed resources (NCFR) in livestock production systems (Salem *et al.*, 2004) [11]. Many attempts have been made to utilize locally available cheap by-products for the benefit of end users in reducing the feed cost which in turn can reduce the total cost of production of meat and egg and making them easily available in rural India (ICAR, 2014) [5].

The effect of brewers' dried grain on the performance and carcass characteristics was studied in Vanaraja chicks from 4<sup>th</sup> week to 9<sup>th</sup> week of age and concluded for incorporation up to 20% in the diet without affecting growth performance. Same level of its inclusion was also recommended in Rhode Island Red (RIR) chicks from 1<sup>st</sup> day to 8 weeks of age without any adverse effect on productive performance (Swain *et al.*, 2012) [15].

Though India being a leading producer of Jamun, it contributes only 15.4% to the total production (13.5 million tonnes) worldwide. The Jamun fruit has an oval shape with 2-3 cm long containing a hard seed inside. The flavor of the fruit is astringent and it looks like a blueberry in shape and color (Baliga *et al.*, 2010) [3].

Research trials suggested better performance when jamun (*Syzygium cumini*) seed was included both in commercial broilers (Adarsh *et al.*, 2022) [1] as well as coloured birds like

giriraja (Sravani *et al.*, 2022) [14]. Hence this study was planned to know the livability rate in commercial broilers.

## Materials and Methods

ICAR (2013) [4] recommended broiler-pre-starter, broiler-starter and broiler-finisher rations were formulated with conventional feed ingredients. Test diets formulated by addition of Jamun seed at three different levels (0.5% - T<sub>2</sub>, 1% - T<sub>3</sub> and 1.5% - T<sub>4</sub>). Control diet remained without jamun seed.

Hatched out chicks of two hundred and forty number were housed under deep litter system by diving in to twenty groups. Total of four diets were given *ad libitum* to five groups each. This trial was lasted for 42 days. During this experiment, the data on survivability was studied.

Mortality if any in the respective group was recorded as and when the birds died. The dead birds were subjected to detailed post-mortem examination to ascertain the cause of death. The survivability percent was calculated by using the following

formula.

$$\text{Survivability\%} = \frac{\text{Number of birds survived}}{\text{Total number of birds housed in the beginning}} \times 100$$

Statistical methods: All data obtained was analyzed using suitable statistical software (Snedecor and Cochran, 1995) [13].

## Results and Discussion

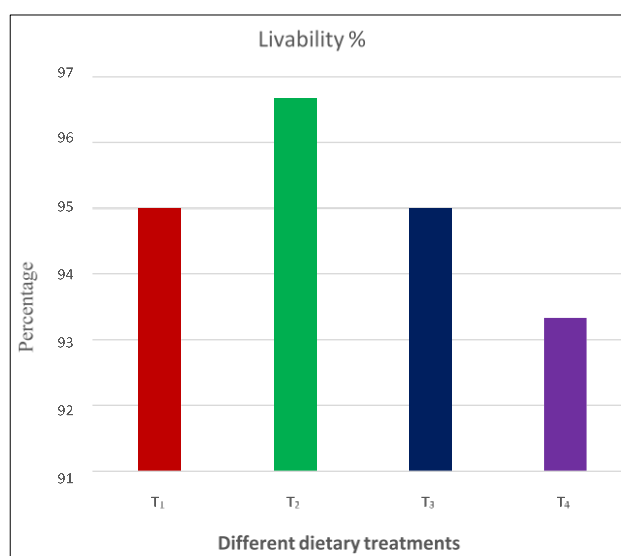
### Livability

The cumulative livability percent of birds under different treatments at the end of the 42-day experiment is presented in table 1 and graphically summarized in figure 1.

The livability value of 95%, 96.67%, 95% and 93.33% was recorded in T<sub>1</sub> to T<sub>4</sub> groups, respectively. There was no significant difference ( $p > 0.05$ ) observed in livability percent among all the treatment groups.

**Table 1:** Percent livability of birds fed with different levels of Jamun seed

Group	Description of the treatment	Livability%	F value
T <sub>1</sub>	Control diet	95±2.04	0.254
T <sub>2</sub>	0.5% Jamun seed inclusion in the control diet	96.67±2.04	
T <sub>3</sub>	1% Jamun seed inclusion in the control diet	95±3.33	
T <sub>4</sub>	1.5% Jamun seed inclusion in the control diet	93.33±3.11	



**Fig 1:** Livability percent of birds under different treatments at the end of 42nd day

The percent livability of birds among different treatments were statistically similar. From the results it could be inferred that livability percentage was not affected by any dietary treatment and hence the mortality in all groups was independent of dietary variations.

Thus, the results of the present study are in agreement with the findings of Ndyomugenyeni *et al.* (2008) [8]; Baba *et al.* (2014) [2] and Ndyomugenyeni *et al.* (2016) [9], who observed no mortality with different levels of Jamun seed inclusion in poultry.

## Conclusion

Study on survivability pattern in commercial broilers suggested no deleterious effects of Jamun seeds inclusion in diet.

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