



Kadaknath Chicken: A Native Treasure with Unique Benefits

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OPEN ACCESS

Keywords

Kadaknath, Chicken, Black pigmentation, Medicinal benefits, Omega-3-fatty acids, Ayurveda, Organic food

How to cite this article:

Kumar, A. and Dwivedi, S. 2025. Kadaknath Chicken: A Native Treasure with Unique Benefits. *Vigyan Varta* 6(3): 360-366.

ABSTRACT

The Kadaknath chicken, a native breed from Madhya Pradesh, India, is gaining recognition for its distinct black pigmentation and remarkable health benefits. Traditionally raised by tribal communities, this rare breed is valued for its high protein content, low fat, and abundance of essential nutrients like iron and omega-3 fatty acids. Celebrated in Ayurveda for its medicinal properties, Kadaknath is believed to enhance immunity and support cardiac health. As demand for organic and nutrient-rich foods rises, this breed is becoming an important asset in sustainable poultry farming and rural livelihoods. Though challenges such as slow growth and market competition persist, government support and growing consumer awareness are driving efforts toward its conservation and commercialization. This article delves into the history, breed profile and unique attributes viz., nutritional composition, health benefits etc. and future prospects, emphasizing its role as a modern superfood.

INTRODUCTION

Over the past few decades, poultry farming has evolved from small-scale backyard rearing to large-scale commercial production to satisfy the growing demand for poultry products. This

transformation has led to a decline in indigenous poultry breeds, primarily because they are perceived as less productive than commercial exotic varieties. However, native breeds offer several advantages, such as lower



maintenance costs, superior disease resistance, potential medicinal properties, higher market value, and deep-rooted cultural significance. Despite the continued existence of well-documented indigenous poultry breeds worldwide, their populations have drastically declined—from nearly 50% of the total poultry population to about 10% in recent years. Various factors, including disease outbreaks, overexploitation, and disregard for their ecological and economic contributions, have contributed to this decline. To counteract these challenges, dedicated conservation strategies and sustainable breeding initiatives are essential to safeguard the genetic diversity and advantages of indigenous poultry breeds (Rangnekar and Rangnekar, 1999).

Among the many poultry breeds, Kadaknath stands out as a particularly distinctive and valuable indigenous chicken breed from India. Originating from the tribal regions of Madhya Pradesh, Kadaknath is renowned for its deep black pigmentation and remarkable nutritional and medicinal properties. Unlike commercial broiler breeds, Kadaknath meat is characterized by high protein content, low fat levels, and rich iron concentration, making it a preferred choice for health-conscious consumers. This breed has played a significant role in local traditions for generations, often associated with healing properties in Ayurveda and tribal medicine. Its meat is believed to strengthen immunity, enhance stamina, and support cardiovascular health, earning it the status of a natural superfood. With rising interest in organic and sustainable farming, Kadaknath is gaining recognition beyond its native regions, attracting the attention of farmers, researchers, and food enthusiasts alike (Prakash *et al.* 2023).

This article explores the history, breed profile and unique attributes viz., nutritional composition, health benefits etc. and future prospects of Kadaknath, emphasizing its importance not just as a poultry breed but as a

representation of India's rich biodiversity and traditional knowledge.

Origin and history

The Kadaknath chicken breed is primarily found in the Dhar and Jabua districts of Madhya Pradesh, along with the Bastar district of Chhattisgarh and surrounding regions in central India. Indigenous tribes in these areas have traditionally reared this breed as part of their poultry-keeping practices. The Bhils and Bhilalas communities, in particular, have maintained Kadaknath for generations, integrating it into their cultural heritage, cuisine, and medicinal traditions. This breed is distinguished by its unique black pigmentation, which extends to its feathers, skin, meat, bones, and internal organs due to high melanin levels. Its adaptability to challenging environmental conditions, disease resistance, and hardiness have contributed to its survival and preservation among rural farming communities. In recognition of its distinct identity, Kadaknath was granted a Geographical Indication (GI) tag in 2018, officially establishing its status as a native poultry breed of Madhya Pradesh.

Beyond its role as a food source, Kadaknath has long been associated with medicinal properties, particularly in Ayurveda and traditional tribal medicine. Its meat is believed to support immune function, enhance stamina, and promote cardiovascular health, making it a valued component of local diets. As awareness of its nutritional and therapeutic benefits has grown, demand for Kadaknath has increased both within India and internationally. However, the expansion of commercial poultry farming has contributed to a decline in indigenous breeds like Kadaknath, highlighting the need for conservation programs to safeguard this genetic resource. In recent years, Kadaknath has gained recognition as a premium poultry breed, appreciated for its health benefits, cultural

significance, and potential role in sustainable farming (Singh *et al.* 2009; Jaiswal *et al.* 2014; Pandey *et al.* 2024).

Breed profile and Morphogenetic diversity

Kadaknath chicks display dark stripes on their back in an irregular pattern, while adult birds exhibit either silver-gold-spangled or spangled bluish-black plumage. A unique trait of this breed is its darker-coloured blood. Kadaknath chickens have a single black comb and produce around 80 to 100 eggs per year, with light brown to cream-colored small-sized eggs. They are less broody, making them suitable for continuous egg production. This dual-purpose breed is valued for both meat and egg production, as well as for preservation efforts. Kadaknath chickens are well-suited for backyard farming due to their hardy nature and adaptability (Prakash *et al.* 2023).

Kadaknath is known for its distinct dark pigmentation, which extends to internal organs such as the thoracic and abdominal air sacs, elastic arteries, trachea, heart base, gonads, and mesentery. This pigmentation is attributed to a genetic trait called fibro melanosis (Saxena, 2019). The breed also exhibits dark-coloured blood, and external features such as the beak, shanks, skin, soles of the feet, and toes display a slate-like hue (Rao and Thomas, 1984).

This unique trait has been preserved through selective breeding over generations, leading to the fixation of specific genetic characteristics. Additionally, the meat of Kadaknath is highly regarded for its distinct taste, making it a preferred choice among consumers. Traditionally, the breed has been associated with various health benefits, including aiding postnatal recovery, relieving headaches, and supporting individuals with nephritis and asthma. Its meat is also believed to have aphrodisiac properties, while its blood has

been historically used in traditional medicine to treat chronic ailments.

Kadaknath chickens are classified into three distinct varieties: jet black, pencilled, and golden. The jet-black variety has completely black plumage in adulthood, while the pencilled variety has black feathers with white markings on the neck. The golden variety is primarily black with golden-coloured feathers around the head and neck (Thakur *et al.* 2006). The breed's dermal hyperpigmentation is influenced by an autosomal dominant gene known as fibromelanosis (Fm), while the sex-linked inhibitor of dermal melanin (Id) exerts an epistatic effect on this pigmentation trait (Arora *et al.* 2011).

Immunity and Resilience to diseases

Kadaknath chickens are considered to have strong disease resistance compared to many other poultry breeds. Their immune competence is similar to other native Indian chicken breeds but significantly higher than that of exotic commercial breeds (Kokate *et al.* 2017a; Kokate *et al.* 2017b). However, under intensive rearing conditions, Kadaknath chickens have been found to be more susceptible to Marek's disease (Rao and Thomas, 1984).

A study by Radhika *et al.* (2017) reported that Kadaknath exhibited a higher antibody response against SRBC (Sheep Red Blood Cells) than previous studies had indicated (Jaiswal *et al.* 2014; Saxena *et al.* 2012). While the immune response of Kadaknath was found to be comparable to Aseel chickens, it was significantly stronger than that of White Leghorn birds. This heightened immune response in indigenous breeds is likely due to their genetic adaptation to tropical climates, which could make them valuable for improving disease resistance in commercial poultry.

Despite these advantages, research by Thakur *et al.* (2020) revealed that Kadaknath chickens have lower immunity against coccidial infections than broiler breeds, indicating the need for further studies on their disease resistance mechanisms. Additionally, it is widely believed that Kadaknath chickens exhibit a lower mortality rate (19%) compared to other native Indian breeds (30%) (Ranabijuli *et al.* 2020). However, field studies by Parmar (2003) reported a slightly higher mortality rate (20.72%) in Kadaknath chicks aged 0 to 1 week. These variations suggest that additional research is required to better understand Kadaknath's survival rates across different rearing conditions.

Performance, Growth rate, and Feed utilization

Black meat chicken breeds, including Kadaknath, are characterized by a slow growth rate, resulting in delayed market readiness. According to Haunshi and Prince (2021), Kadaknath chickens reach an average weight of 865 g at 20 weeks of age. By 40 weeks, males attain an approximate weight of 1500 g, while females weigh around 1200 g. This study also demonstrated that Kadaknath outperforms other indigenous chicken breeds in terms of economic returns and body weight. Similarly, at 180 days, the breed exhibited a significantly higher average body weight (1227.11 ± 2.416 g) compared to other native Indian breeds (807.614 ± 2.033 g). Kadaknath chickens require less feed than commercial broilers and layers due to their slower growth rate. Parmar (2003) documented their weekly feed intake, starting at 27.56 g in the first week and increasing to 458.68 g by the twentieth week. The feed conversion ratio (FCR) fluctuated between 2.04 and 7.61, with an average of 4.26 ± 0.40 , indicating variability in feed efficiency across different growth stages.

Nutritional superiority and Health benefits

Kadaknath is recognized for its unique nutritional profile, which includes high protein content and lower fat levels compared to conventional poultry breeds. The cholesterol content in Kadaknath eggs is also lower (184.75 mg/100 g) than that of other chicken varieties (218.12 mg/100 g), making them a healthier choice for consumers (Kumar *et al.* 2018). Sehwat *et al.* (2020) reported that the protein content in Kadaknath breast muscle is 25.25 ± 0.31 g per 100 g of tissue, while the protein content in the thigh muscle (19.98 ± 0.29 g/100 g) is slightly lower than in other black meat breeds. The fat content in Kadaknath meat is significantly lower (0.73% to 1.03%) compared to commercial broiler chickens (13–25%) (Haunshi and Prince, 2021). This lower fat content makes Kadaknath a suitable option for individuals managing conditions such as high blood pressure (Monika *et al.* 2009; Rao and Thomas, 1984). Furthermore, Kadaknath's total cholesterol level is similar to other black meat chicken breeds, further enhancing its dietary value (Choo *et al.* 2014).

Kadaknath chicken meat also possesses strong antioxidant properties, which contribute to its health benefits. Sehwat *et al.* (2020) found that Kadaknath meat exhibited higher free radical scavenging activity in ABTS, DPPH, and CUPRAC assays compared to Cobb broiler meat. The ferric reducing antioxidant power (FRAP) was also significantly greater in Kadaknath breast (26.97 ± 0.37 mM Fe^{2+} /g) and thigh meat compared to Cobb broiler meat (15.24 ± 0.40 mM Fe^{2+} /g). The presence of natural antioxidants suggests that Kadaknath meat could have potential applications in the food, nutraceutical, and cosmeceutical industries. Additionally, its melanin-rich composition provides essential minerals like calcium, iron, magnesium, and zinc, enhancing its overall nutritional value.

Meat quality and market potential

Research on Kadaknath chicken's carcass traits is limited. Parmar (2003) noted no fixed slaughter age, though tribal communities typically slaughter them at 7–8 months for cultural events. The dressing percentage was 71.14% in males and 74.32% in females, averaging 72.73%. Ekka *et al.* (2018) reported dressing percentages of $67.57 \pm 1.41\%$ for males and $67.38 \pm 0.46\%$ for females at 20 weeks.

Studies on value-added products remain scarce. Badole *et al.* (2021) examined guar gum in Kadaknath patties, finding that 1% inclusion improved texture, moisture, and cooking yield. Uikey and Nayak (2020) explored fibre enrichment with gram hulls, reporting decreased moisture but increased fibre and hardness, with 6% inclusion being optimal for nuggets. These findings highlight Kadaknath's potential for value-added meat products.

Role in sustainable farming and rural economy

Kadaknath plays a vital role in sustainable poultry farming due to its low maintenance, natural disease resistance, and adaptability to free-range systems. Unlike commercial broilers that require intensive farming, Kadaknath thrives in semi-intensive and backyard setups, minimizing feed and veterinary costs, making it ideal for organic and eco-friendly farming, which aligns with the global shift toward antibiotic-free meat. Its higher market value also makes it a profitable choice for small-scale farmers, promoting indigenous breeds over hybrids (Rathore *et al.* 2022). Beyond agriculture, Kadaknath supports rural economies, particularly in Madhya Pradesh's tribal regions, where it has been traditionally reared. Government initiatives, farmer cooperatives, and training programs enhance income opportunities, while

rising demand for nutrient-rich and medicinal poultry products expands export potential. Strengthening its role in rural development and agri-entrepreneurship can bolster India's indigenous poultry sector, ensuring economic sustainability and preserving valuable genetic resources (Tripathy *et al.* 2022).

Challenges and future perspectives

Despite its exceptional nutritional value and medicinal benefits, Kadaknath faces challenges that hinder its widespread adoption, primarily due to its slower growth rate and lower egg production compared to commercial broilers, making it less appealing for large-scale poultry farmers focused on rapid turnover and high yield. Limited consumer awareness, inadequate breeding and marketing support, high rearing costs, and competition from hybrid breeds further discourage investment in Kadaknath farming. However, increasing demand for organic, antibiotic-free, and nutrient-rich foods presents significant growth potential in domestic and international markets. Government initiatives, subsidies, and research programs are crucial in enhancing breeding efficiency and promoting Kadaknath farming. Strengthening supply chains, farmer cooperatives, and awareness campaigns can improve accessibility and affordability, while advancements in poultry genetics, sustainable breeding, and improved farming techniques can boost productivity while preserving its unique traits. With appropriate conservation strategies, policy support, and consumer engagement, Kadaknath can establish itself as a high-value poultry breed, benefiting farmers, health-conscious consumers, and the preservation of India's indigenous livestock heritage.

CONCLUSION

To sum up, Kadaknath is a unique indigenous chicken breed that exemplifies India's rich biodiversity and traditional knowledge.

Known for its high protein, low fat, and rich nutrient content, it offers significant health and medicinal benefits, including improved immunity and heart health. Despite its advantages, Kadaknath faces challenges such as low productivity and competition from commercial breeds. However, rising demand for organic and nutrient-rich foods presents new opportunities for its conservation and commercialization. Supporting Kadaknath farming not only helps preserve genetic diversity but also strengthens rural livelihoods and sustainable agriculture, making it a valuable asset for both health-conscious consumers and the poultry industry.

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