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THE IMPACT OF MEDICINAL PLANTS ON THE PRODUCTIVITY OF QUAIL

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Abstract: *Medicinal plants have a massive impact on poultry industry, enhancing performance, immunity, and lowering harmful microorganism proliferation. Research has shown that medicinal plants could be used as a future alternative to antibiotic growth promoters. The benefits of medicinal plants in quail feeding are discussed in this review.*

Keywords: *Quail- Productive performance- Medicinal plants.*

Introduction: The poultry industry produces high-quality proteins for human nutrition as well as plays a significant role in economic growth. As a result, intense brooding systems are becoming more common in many countries. Eggs are regarded as one of the most important daily foods. Quail eggs can be used instead of chicken eggs to meet this demand, and despite their small size, they have significant nutritional advantages over chicken eggs since they are higher in protein, fat, vitamins, and minerals (iron, potassium, and zinc). Furthermore, it has been suggested that quail eggs are high in protein and low in fat and cholesterol. As a result, many people ingest quail eggs, particularly in Asian nations, because they are a good source of nutrients for human health and aid in the treatment of tuberculosis, bronchial asthma, and diabetes [Abou-Elkhair et al., 2020].

Unfortunately, the intensive brooding system puts quail under a lot of stress, lowering their livability and genetic performance. Some feed additives are thought to be able to reduce stress, enhance feed efficiency, and improve economic indicators in intensive systems. Antibiotics and other feed additives work through a variety of processes, one of which is the regulation of gut microbiota. However, using antibiotics as a feed supplement has significant drawbacks. Flavomycin intake, for example, caused DNA damage and elevated oxidative stress in quails. Antibiotics in quail feed can also increase the abdominal fat and raise the risk of heart disease in consumers. However, because the use of antibiotics in poultry feeding increases the

risk of antibiotic resistance in human society, certain nations have banned the use of antibiotics as feed additives. Prebiotics, probiotics, phytobiotics, and medicinal plants are some of the alternatives to in-feed antibiotics. Furthermore, unlike antibiotics, most active components of medicinal plants are quickly absorbed and have a short half-life. As a result, the likelihood of these components accumulating in tissue is presumably low. Medicinal plants act through stimulating the secretion of endogenous digestive enzymes, which limit bacteria growth or their toxins, modulate microflora population, and change ions diffusion by disrupting bacteria cell walls and reducing the number of harmful bacteria in the digestive tract. Antiviral, antibacterial, and antioxidant properties are present. Plant secondary compounds such as phenolic compounds are thought to have antibacterial and antifungal properties [Khosravifar et al., 2014].

Effect of medicinal plants on the productive performance parameters: Several medicinal plants have been evaluated to improve the productive performance of quail. Abou-Elkhair et al. [2020] tested the effect of *Moringa oleifera* seed powder as a feed supplement on the productive performance and egg quality traits of heat-stressed laying Japanese quail (Coturnix japonica). The diet was supplemented with 0.1%, 0.2 %, and 0.3% of *M. oleifera* seed powder, and the results demonstrated that increased *M. oleifera* seed powder supplementation boosted feed intake and feed conversion ratio considerably. Reda et al. [2021] investigated the effects of licorice (*Glycyrrhiza glabra*) on quail growth, carcass characteristics, and gut flora. Licorice supplementation significantly reduced total bacteria, coliforms, E. coli, and Salmonella counts. Licorice added to the diet of quail at doses of 750 and 1000 mg/kg improves performance and maintains a healthy gut microbiome. The effects of *coriander sativum* leaf meal (CLM) on quail growth, carcass features, and immunological response were studied. The findings showed that CLM can be incorporated in quail meals up to 6.0 % without affecting growth performance, carcass features, or the blood profile of the birds [Alagbe, 2018]. Kamel et al. [2021] found that nutritional inclusion of pomegranate peel powder at levels up to 9% improved growth performance, elevated antioxidant qualities, and had no negative impact on carcass quality in quail strains. Another study investigated the toxic effects of lead on quail productivity and the effectiveness of *Yucca schidigera* extract in reducing these effects. Supplementing a lead-containing diet with *Y. schidigera* extract (100 or 200 mg/kg diet) could increase quail performance greatly [Alagawany et al., 2018]. Tenório et al. [2017] claims that chamomile extract in quail feed has no effect on the birds' performance and that it can be utilized during the laying season without hurting production. Lavender also improved internal organ characteristics, whereas flaxseed boosted the hatchability of quail eggs. Egg yolk color was improved by lavender, Alfalfa, and nettle powder, while ginger reduced fat content in meat and boosted color intensity. The effect of medicinal plants on the productive performance of quail shown in **table.**

Table

The effect of medicinal plants on the productive performance of quail

Plant	Administration	Effect	Ref
Moringa oleifera	0.1%, 0.2%, and 0.3 % *M. oleifera* seed powder were added to the diet. The experiment began when the animals were 7 weeks old and ended when they were 15 weeks old.	Using 0.3 % *M. oleifera* seed powder throughout the laying season may boost heat stress tolerance and egg productivity.	[Abou-Elkhair et al., 2020]
Glycyrrhiza glabra	For 5 weeks, 250, 500, 750, and 1000 mg/kg of licorice powder were added to the diet.	At doses of 750 and 1000 mg/kg, licorice improved quail performance while also maintaining healthy gut flora.	[Reda et al., 2021]
Pomegranate peel	Diets containing 3 %, 6 %, and 9 % pomegranate peel powder were used for 42 days.	Pomegranate peel powder (9%) improved the growth performance of Japanese quail.	[Kamel et al., 2021]
Yucca schidigera	*Y.schidigera* extract (100-200 mg/kg) was added to the diet for 8 weeks.	The quail performance was improved by using *Y.schidigera* extract (200 mg/kg diet).	[Alagawany et al., 2018]
Chamomile	2.5, and 5.0 g of chamomile/kg of feed were tested in six different ways over time (14, 28, 42, 56, 70, and 84 days of trial).	The addition of 1.8–5.0 g chamomile/kg to a quail diet has no effect on the birds' performance.	[Tenório et al., 2017]

Conclusion:

- Quail industry can offer high-quality proteins for human nutrition.
- Medicinal plants have a significant impact on the quail industry, improving performance and productivity, immunity, and reducing pathogenic microbe growth.
- *Moringa oleifera*, *Glycyrrhiza glabra*, and *Yucca schidigera* can all have a positive impact on quail productivity.hile *coriandrum sativum* and stinging nettle had no negative impact on productivity.
- Medicinal plants could be used as a possible alternative to antibiotic growth promoters.

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АЛЛОМЕТРИЧЕСКОЕ УРАВНЕНИЕ ДЛЯ ВЫЧИСЛЕНИЯ МАССЫ ЖЕЛУДКА У ЯПОНСКИХ ПЕРЕПЕЛОВ

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Аннотация: *В настоящем исследовании, которое проводилось в ветеринарной лаборатории и виварии РУДН, определялась абсолютная масса желудка у японских перепелов на разных стадиях их постэмбрионального развития. Результаты показали, что абсолютная масса желудка перепелов изменялась на различных стадиях развития, она уменьшалась с 1-го по 30-й день, увеличивалась с 30-го по 60-й день, а затем снова уменьшалась до 240-го дня. С другой стороны, исследование показывает, что между массой тела*