

Research Article

Survey of Ectoparasites on Guinea Fowls Sold in Gwagwalada Market, Federal Capital Territory (FCT), Abuja, Nigeria

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Abstract

This study investigated the prevalence, diversity, and risk factors associated with ectoparasite infestation on guinea fowls (*Numida meleagris*) sold in Gwagwalada Market, Federal Capital Territory (FCT), Abuja. A total of 115 guinea fowls of both sexes were randomly sampled and examined for ectoparasites over a six-week period using physical inspection, manual collection, and microscopic identification techniques. Out of the 115 birds examined, 47 (40.87%) were infested with one or more ectoparasites. The identified ectoparasites included lice species (*Menopon gallinae*, *Menacanthus stramineus*, *Lipeurus caponis*, *Goniocotes gallinae* and *Menacanthus cornutus*), mites (*Ornithonyssus sylvii*), and ants (*Solenopsis geminata*). Lice were the most prevalent (30.43%), followed by mites (9.57%) and ants (0.87%). Infestation types were predominantly single (30.43%), with some cases of double (9.57%) and multiple (0.87%) infestations. Risk factor analysis showed that prevalence was higher in females (25.22%) compared to males (15.65%), in birds reared under high stocking density (26.96%) compared to low density (13.91%), and in birds housed alongside chickens (32.17%) compared to those kept exclusively with guinea fowls (8.70%), though these differences were not statistically significant ($P > 0.05$). The findings highlight a considerable ectoparasitic burden in guinea fowls sold in Gwagwalada Market, which could compromise productivity, welfare, and public health. The study underscores the need for improved veterinary supervision, farmer education, and implementation of effective ectoparasite control strategies.

Keywords: Ectoparasites, Guinea Fowl, Lice, Mites, Gwagwalada, Nigeria.

Introduction

Poultry are globally significant as a source of food, livelihood, and experimental models, and they play a critical role in providing animal protein (Nnadi and George, 2010). In Nigeria and much of Africa, poultry production comprises commercialized and backyard (village) systems, with the latter being predominant in rural areas. Among local poultry species, the guinea fowl (*Numida meleagris*) is widely recognized for its hardiness, adaptability, and resistance to many common avian diseases (Oboegbulem and Okoronkwo, 1990). Despite these advantages, guinea fowl production remains underdeveloped relative to chicken farming (Ayorinde, 2004). Nigeria hosts an estimated 54.7 million guinea fowls, mostly concentrated in the Northern Savannah region, where they are reared both in the wild and in domesticated settings (Akinwunmi, 1981; Okaeme, 1989). They provide an important source of protein and income for rural households (Biu and Etukwudo, 2004). However, guinea fowl productivity can be severely affected by ectoparasitic infestations, which cause irritation, anaemia, weight loss, and reduced egg production, and may also transmit pathogens of zoonotic importance (Soulsby, 1982; Permin and Hansen, 1998). Despite their importance, data on the prevalence and diversity of ectoparasites infesting guinea fowls in Nigeria remain scarce. This study therefore aimed to determine the prevalence and diversity of ectoparasites on guinea fowls sold in Gwagwalada Market, FCT, Abuja, and to assess associated risk factors.

Materials and Methods

Study Area

The study was conducted at Gwagwalada Market, situated in Gwagwalada Area Council of the Federal Capital Territory (FCT), Abuja, Nigeria. Gwagwalada lies between latitude 8.9503° N and longitude 7.0821° E and serves as a major commercial hub within the FCT (FCDA, 2024). The area experiences a Guinea savanna

climate, with distinct wet and dry seasons favourable for guinea fowl production and ectoparasite proliferation. The market attracts traders from neighbouring communities, and guinea fowl rearing is common among local livestock farmers due to its economic value. The area has a population of over 157,000 and covers approximately 1,043 km² (NPC, 2006).

Study Design and Sampling

A simple random sampling design was employed to determine the prevalence and types of ectoparasites infesting guinea fowls sold in the market. Sampling occurred over six weeks, with visits twice weekly to ensure representative coverage. A total of 115 guinea fowls (both sexes) were examined. Each guinea fowl was manually restrained and examined thoroughly. Feathers on the head, neck, vent, back, and underwings were parted to reveal ectoparasites. Visible parasites were manually collected using fine brushes and forceps into labelled containers containing 70% methanol. Ectoparasites were identified morphologically using stereo microscopes and taxonomic keys (Soulsby, 1982; Permin and Hansen, 1998). Identification was based on size, segmentation, body shape, and presence of setae or combs.

Data Analysis

Data were analysed using IBM SPSS version 23. Associations between prevalence and risk factors (sex, stocking density, and housing type) were tested using Chi-square analysis at $p \leq 0.05$.

Results

Out of 115 guinea fowls examined, 47 (40.87%) were infested with one or more ectoparasites (Table 1). Lice were the most predominant group (30.43%), followed by mites (9.57%) and ants (0.87%).

Table 1. Prevalence of ectoparasite infestation in guinea fowls sold in Gwagwalada market.

Ectoparasite type	Number infested (N=115)	Prevalence (%)
Lice	35	30.43
Mites	11	9.57
Ants	1	0.87
Total	47	40.87

A total of seven species of ectoparasites were identified, comprising five species of lice, one mite, and one ant species (Table 2). *Goniocotes gallinae* was the most prevalent (17.39%), while *Solenopsis geminata* was least prevalent (0.87%).

Table 2. Identified ectoparasites on guinea fowls sold in Gwagwalada market.

Parasite group	Species	Predilection site	Number infested	Prevalence (%)
Lice	<i>Menopon gallinae</i>	Feathers of neck, back, wings	6	5.22
	<i>Menacanthus stramineus</i>	Thigh and breast regions	18	15.65
	<i>Lipeurus caponis</i>	Wing feathers	13	11.30
	<i>Goniocotes gallinae</i>	Downy parts of feathers	20	17.39
	<i>Menacanthus cornutus</i>	Vent and thighs	3	2.61
Mite	<i>Ornithonyssus sylviarum</i>	Comb, wattles, eyelids, vent	16	13.91
Ant	<i>Solenopsis geminata</i>	Skin areas in contact with ground	1	0.87

Table 3. Type of ectoparasite infestation in guinea fowls.

Ectoparasite type	Number infested	Prevalence (%)
Single	35	30.43
Double	11	9.57
Multiple	1	0.87
Total	47	40.87

Table 4. Association between selected risk factors and ectoparasite infestation.

Risk factor	Category	Prevalence (%)	P-value
Sex	Male	15.65	>0.05
	Female	25.22	
Stocking density	Low	13.91	>0.05
	High	26.96	
Housing type	Only guinea fowl	8.70	>0.05
	Mixed with chickens	32.17	

Discussion

The overall prevalence (40.87%) of ectoparasite infestation in this study aligns with previous reports on guinea fowls and local chickens in Nigeria (Nnadi and George, 2010; Yakubu *et al.*, 2014). The predominance of lice (30.43%) indicates their adaptability to avian hosts and ease of transmission under communal housing and trade conditions. Mites (*Ornithonyssus sylviarum*) (9.57%) were the second most common ectoparasite, which is consistent with their preference for warm, humid conditions and their role in causing dermatitis and anaemia in poultry. The occasional occurrence of ants (*Solenopsis geminata*) (0.87%) likely reflects environmental contact during holding or transport. Higher prevalence in females and in birds reared under crowded or mixed-species housing supports the notion that management practices significantly influence ectoparasitic burden. Although differences were not statistically significant, they are epidemiologically relevant indicators for control planning.

Conclusion

This study revealed a moderate prevalence of ectoparasitic infestation among guinea fowls sold in Gwagwalada Market, FCT, Abuja. Lice were the most predominant ectoparasites, followed by mites and ants. Female birds, high stocking densities, and mixed housing with chickens were associated with higher infestation rates.

Recommendations

- ☞ Routine ectoparasite surveillance and treatment programmes for market poultry.
- ☞ Farmer education on hygiene, biosecurity, and species separation.
- ☞ Strengthened veterinary inspection of live bird markets.

Declarations

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