

USE OF ETHNO-VETERINARY MEDICINE AMONG POULTRY FARMERS IN IJUMU AREA OF KOGI STATE, NIGERIA

Olobatoke R.Y. and Afolayan E.

1. College of Agriculture, Division of Agricultural Colleges,
Ahmadu Bello University, Kabba, Nigeria.

Correspondence author's email: yemisirose205@yahoo.com

ABSTRACT

This study was carried out to evaluate the use of natural herbs for the treatment of poultry diseases among poultry farmers in Ijumu Local Government Area of Kogi State, Nigeria. Data were randomly collected from 100 poultry farmers in the study area through well-structured questionnaires and oral interview. Data were analyzed using descriptive statistics and logistic regression. Results on socio-economic characteristics showed that the modal age of the farmers was 30 – 40 years, with a mean age of 39 years. Majority (90%) of the farmers acquired formal education and about 50% of the farmers had 1 – 10 years farming experience. Most of the poultry farmers use natural herbs mostly for coccidiosis (93%), fowl cholera (88%), Newcastle disease (80%), fowl pox (76%), gumboro (64%) and chronic respiratory disease (51%). The regression analysis indicates that age ($r = 0.033$), poultry farming experience ($r = 0.051$), flock size ($r = -0.040$) and access to veterinary services ($r = -0.009$) were significant in determining the use of natural herbs at 5% level of probability. Furthermore, perception of the farmers revealed that the use of local methods in managing and preventing poultry diseases is indeed effective and reliable.

Keywords: Poultry, Ethno-Veterinary, Diseases, Synthetic Drugs, Natural Herbs

IJAFS 2022 (12):1854 - 1861

INTRODUCTION

Poultry industry in Nigeria is quite significant as a major source of supply of animal protein to the citizens. Poultry production has numerous functions and roles, including food provision, income, employment and manure used as organic fertilizer (Pica- Ciamarra *et al.*, 2014). It also supports coping with adverse situations and food insecurity and plays numerous socio-cultural roles (Swanepoel *et al.*, 2010; Najma *et al.*, 2015). Poultry meat and eggs are the most consumed animal protein in Nigeria, unrestricted by any religion or culture. As a result, the production is practiced at both small scale and commercial levels. As at 2010, the nation's production was above 550,000mt of poultry meat and 700,000mt of eggs per annum, with the small scale or backyard production accounting for about 80% (FAO, 2010). In spite of this, the country is currently far from meeting her domestic needs when compared with developed countries. The backyard system is the commonest form of production in Nigeria, and birds kept under these conditions experience high mortality resulting from accidents, predation, and most importantly diseases (Mohammed *et al.*, 2019). Over the years, synthetic antibiotics has been the mainstay of the industry in terms of disease prevention, treatment and growth promotion of the animals. However, emergence of drug resistance microorganisms, and the harmful residual effects of drugs observed in the food chain arising from the use of antibiotics in livestock production have become issues of public health

concern. Moreover, the synthetic drugs in most cases are often out of the reach of resource-poor village farmers due to high cost or unavailability (Kebede *et al.*, 2017). This has necessitated the search for alternative medicines such as herbs for the health maintenance and improved productivity of poultry. For instance, scent leaf meal was found to improve the growth performance and lower the blood cholesterol level of cockerels (Olobatoke and Okaragwu, 2021).

Similarly, it was observed that Aloe vera has potentials for improving intestinal health and growth performance, as well as controlling coccidiosis when added to broiler feed (Babak and Nahashon, 2014). Ethno-veterinary medicine consists of local knowledge dealing with folk's beliefs, skills and practices pertaining to animal health care and production, and this knowledge is usually passed down orally from one generation to another (Mohammed *et al.*, 2019). Plants are the principal ingredients in the preparation of ethno-veterinary medicines including the seeds, leaves, flowers, barks, fruits and roots. This method of treating livestock diseases is engaged more by village farmers in most African countries, including Nigeria. Markos (2019) evaluated the common poultry diseases and ethno-veterinary practices in Northern Ethiopia and concluded that chicken producers in the study area used medicinal plant for poultry health management.

Adeleye *et al.* (2021) similarly assessed the common ethno-veterinary practices engaged by broiler farmers in Ogun State, Nigeria, and observed that Moringa leaf, Christmas melon, basil and bitter leaf were among the local herbs used in the therapy for poultry diseases. McGraw and Eloff (2008) noted that ethno-veterinary medicine may be a cheaper and more easily accessible alternative to expensive pharmaceutical drugs. However, the level of utilization of the natural herbs in poultry production as alternatives to synthetic antibiotics has not been properly documented. This research is therefore aimed at evaluating the use of ethno-veterinary medicine among poultry farmers in Ijumu Local Government Area of Kogi State.

MATERIALS AND METHODS

Study area

The study was carried out in Ijumu area of Kogi State. The area lies within 7°51'N 5°58'E, with total land area of 1,306 km² and a population of 160,100 people as at 2016. The average annual temperature and rainfall are 24.8°C and 1242 mm respectively. The communities are mainly agrarian, and as such, both crop and livestock agriculture play dominant roles in the economy of the people (Dimelu *et al.*, 2017).

Data collection and analysis

In the sampling procedure, purposive sampling technique was used to select those villages (n = 10) with high number of poultry farmers whereas random technique was used to select individual respondents (n = 100) within the selected villages. Data was collected through the use of well-structured questionnaires and oral interview technique where necessary. Data were analysed using descriptive and inferential statistics in IBM-SPSS (version 20).

RESULTS AND DISCUSSION

Table 1 shows the socio-economic characteristics of respondents in the study area. Results of the study revealed that majority (60%) of the farmers were aged 30 – 40 years with mean age of 39 years. This implies that most of the poultry farmers in the study area are in their active age (i.e. young) and this may increase farming efficiency. Younger farmers tend to be more enthusiastic and are risk takers whereas the older farmers may be more experienced. Report of this study is in agreement with the observations of Abanigbe *et al.* (2018) and Adeleye *et al.* (2021) who reported the age range of 18 – 45 and 20 – 51 years respectively for poultry farmers in Ogun State.

Gender distribution shows that majority (65%) of the respondents were males compared with 35% female farmers.

Table 1: Socio-economic Characteristics of the Poultry Farmers in the study area

Variable	Frequency	% (n=100)	χ
Age			
30 – 40	60	60	
41 – 50	25	25	39
51 – 60	10	10	
>61	5	5	
Sex			
Male	65	65	
Female	35	35	
Marital status			
Married	70	70	
Unmarried	30	30	
Education			
Tertiary	30	30	
Secondary	40	40	
Primary	20	20	
No formal education	10	10	
Farming experience (yrs)			
1 - 10	50	50	
11 - 20	30	30	13
>21	20	20	
Household size			
1 - 5	40	40	
6 - 10	50	50	7
>11	10	10	
Flock size			
1 - 200	50	50	
201 - 400	30	30	240
>400	20	20	
Association membership			
Yes	20	20	
No	80	80	
Access to veterinary services			
Yes	60	60	
No	40	40	

Source: Field survey, 2022

This could be due to the fact that men are usually more involved in farming and the report agrees with the observation of Abegunrin and Eniola (2019) who similarly noted higher percentage of male poultry farmers in Ibadan, Nigeria. Moreki (2012) however reported a contrary observation among poultry farmers in Botswana. The current study also revealed that majority (70%) of the respondents are married, indicating that this category may have been more engaged in poultry farming as a means of increasing their income to meet family needs. Furthermore, the level of

literacy (90%) among the respondents could have a positive effect on adoption of new innovations thereby increasing productivity.

Table 2: Use of natural herbs for prevalent poultry diseases in the study area

Disease	% (n = 100)	Rank	Natural herbs used
Coccidiosis	100	1 st	Bitter leaf, Water, Moringa
Fowl typhoid	90	2 nd	Siam weed, lime water, moringa
Newcastle disease	82	3 rd	Bitter leaf, Scent leaf, Sorghum, Guava leaf, Siam weed
Fowl pox	81	4 th	Palm oil, Goat weed, Cassava leaf, Shea butter
Gumboro	73	5 th	Olive leaves, Turmeric, Tagiri, Lime, Water
Chronic respiratory disease	57	6 th	Ginger, Oregano, Green tea, Moringa, Pawpaw
Pullorum	49	7 th	Moringa, Garlic Powder, Bitter leaf, Water
Fowl cholera	47	8 th	Pawpaw, Pepper, Scent leaf, Water, Lime water, Aloe Vera, Moringa, Green tea, Thyme
Helminthosis	42	9 th	Pumpkin leaf, Banana pod, Cassava leaf, Lime, Water
Lousiness	25	10 th	Pepper, Sorghum

Source: Field Survey, 2022

Table 2 shows the prevailing poultry diseases in the study area as well as the natural herbs used to prevent or treat them. The commonest diseases in order of prevalence include coccidiosis (100%), fowl cholera (90%), Newcastle disease (82%), fowl pox (81%), gumboro (73%) and CRD (57%). Similar observations were reported by Ansari *et al.* (2011) and Hashemi and Davoodi (2012) that these diseases were responsible for over 71% of the total cause of mortality in poultry farming. In the current study, all the poultry farmers interviewed used plants or natural herbs to treat poultry diseases. According to the respondents, the natural herbs are cheaper than comparable western drugs, locally available, easily accessible and are readily understood, in agreement with the observations of Gobvu *et al.* (2023). They also believe that natural herbs do not produce side effects of modern drugs (Jegade *et al.*, 2013). Poultry farmers in Erode, India, and Southern Africa similarly used ethno-veterinary medicines (EVM) to treat diseases such as Newcastle, fowl pox and ectoparasite infestation (Vinothraj *et al.*, 2019; Gobvu *et al.*, 2023).

Table 3: Determinants of the use of natural herbs by poultry farmers in the study area

Variable	Coefficient	Standard Error	t-Stat	P-value
(Constant)	.98354	.21877	4.4957	
Age	.03282	.01198	2.7395**	0.033
Sex	.07412	.04921	1.5061	0.074
Level of education	.23152	.08012	2.8896	0.231
Marital status	.42060	.29400	1.4306	0.420
Poultry Production Exp	.05123	.01945	2.6339**	0.051
Flock size	-.04012	.01434	-2.7960**	0.039
Household size	.53310	.34720	1.5354	0.533
Membership of Association	.21234	.14120	1.5038	0.212
Access to veterinary services	-.00891	.00329	-2.7082**	0.008
Log likelihood		-162.04		
Cox and Snell R square		0.4931		

** = Sig @ 0.05

Table 3 shows that age and poultry farming experience had positive and significant influence on the use of natural herb by poultry farmers, implying that a unit increase in any of these socio-economic variables will lead to a unit increase in the use of herbal medicine to treat diseases. On the contrary, flock size and access to veterinary services had a significant but negative influence on the use of natural herbs as any unit increase in these variables will lead to a decrease in the use of natural herbs. Furthermore, Cox and Snell R square of 0.49 indicate that 49% of the variations in the use of herbal medicine in poultry production were influenced by the socio-economic characteristics of the farmers.

Table 4 Farmers' perception of the effectiveness of natural herbs in poultry farming

Perception	Frequency	%
Highly Effective	59	59
Effective	30	30
Undecided	5	5
Ineffective	4	4
Highly Ineffective	1	1

Source: Field survey, 2022

Table 4 shows that the respondents in the study area perceive natural herbs to be highly effective in the treatment of poultry diseases. The results indicated that the use of local methods of managing and preventing poultry diseases is indeed reliable. The farmers generally preferred and had more confidence in their local methods because the materials needed are readily available, affordable and easy to adopt. These perceptions accord with the observations of Abegunrin and Eniola (2019) and Jambwa *et al.* (2021) in Oyo State, Nigeria and Zimbabwe respectively.

CONCLUSION

Poultry farmers in the study area use different natural medicines to prevent or treat various poultry diseases ranging from coccidiosis, fowl cholera, Newcastle disease, fowl pox, gumboro, CRD, etc, with perceived high level of effectiveness.

REFERENCES

- Abanigbe, S.A., Adesina, A., Jibodu, A. and Jaji, M.F.O. (2018). Characteristics of free-range chicken production in Ogun State, Nigeria. *J. Agric. Extent.* 22:1, 79-90.
- Abegunrin, O.O. and Eniola, O. (2019). Perception and use of ethnoveterinary among IDO Poultry farmers in Ibadan, Oyo State, Nigeria. *Int. J. Sci. Res. Pub.* 9: 7, 18-24.
- Adeleye, O.O., Adebowale, S. I., Egbeyale, L.T., Sogunle, O.M. and Fapojuwo, O. (2021). Common sustainable ethno-veterinary practices in broiler chicken production in two Local Governments of Ogun State, Nigeria. *Nig. J. Anim. Prod.* 48:1, 24 - 32.
- Ansari J., Khan S.H., ul Haq, A. and Yousaf, M. (2011). Effect of the levels of *Azadirachta indica* dried leaf meal as phytogenic feed additive on the growth performance and haemato-biochemical parameters in broiler chickens. *J. Appl. Anim. Res.* 40:1, 336–345.
- Babak, D. S. and Nahashon, N. A. (2014). A review on effects of *Aloe vera* as a feed additive in broiler chicken diets. *Anim. Sci.* 14:3, 491–500.
- Dimelu, U.M., Salifu, D.E., Mbolle, C.J. Achonam, E.I. and Mbadiwe, I.E. (2017). Livelihood issues in herdsman- farmers' conflict among farming communities in Kogi State, Nigeria. *Afr. J. Agric. Res.* 12:24, 2105–2115.
- FAO (2010). Smallholder poultry production – livelihoods, food security and sociocultural significance, by Kryger, K.N., Thomsen, K.A., Whyte, M.A. and Dissing, M. FAO Smallholder Poultry Production Paper No. 4. Rome, Italy.
- Gobvu, V., Poshiwa, X., and Benhura, M.A. (2023). Use of ethnoveterinary medicines for poultry health management in Southern Africa Development Community (SADC) countries: A review. *J. Technol. Sci. (JTS)* 1: 2, 1- 14
- Hashemi, S.R. and Davoodi, H. (2012). Herbal plants as new immuno-stimulator in poultry industry: A review. *Asian J. Anim. Vet. Adv.* 7:2, 105-116.
- Jambwa, P., Katsande, S., Matope, G., and McGaw, L.J. (2021). Ethnoveterinary remedies used in avian complementary medicine in selected communal areas in Zimbabwe. *Planta Medica*, 88:4, 313-323
- Jegede, O.C, Mohammed, B.R., Obeta, S.S., Simon, M.K. and Ejiofor, C.E. (2013). Gastrointestinal parasites of ruminants at the Gwagwalada abattoir, FCT, Abuja, Nigeria. *Nig. J. Parasitol.* 34: 55-59.
- Kebede, A., Ayalew, S., Mesfin, A., and Muluaem, G. (2017). An ethnoveterinary study of medicinal plants used for the management of livestock ailments in selected Kebeles of Dire Dawa Administration, Eastern Ethiopia. *J. Plant Sci.* 5:1, 34-42.
- Markos, S. (2019). Ethno veterinary medicine and common diseases of chicken producers in Western Zone of Tigray, Northern Ethiopia. *J. Agric. Ecol. Res. Int.* 20:1, 1-17.
- McGaw, L.J., and Eloff, J. N. (2008). Ethnoveterinary use of Southern African plants and scientific evaluation of their medicinal properties. *J. Ethnopharm.* 119:3, 559-574
- Mohammed, L. A., El-Hindawy, M. M., Alagawany, M., Salah, A.S. and El-Sayed, S.A. (2019).

Use Of Ethno-Veterinary Medicine Among Poultry Farmers in Ijumu Area of Kogi State, Nigeria. Olobatoke R.Y. and Afolayan E. JABU International Journal of Agriculture and Food Science (IJAFS) Volume 12.

- Effect of low- or high-CP diet with cold-pressed oil supplementation on growth, immunity and antioxidant indices of growing quail. *J. Anim. Physiol. Anim. Nutr.* 103:5, 1380–1387.
- Moreki, J. (2012). Documentation of ethnoveterinary practices used in family poultry in Botswana. *Vet. World* 6:1, 18-21
- Najma, D. J., Abiy, Y.Z., Ermias, A.V., Beatrice, T.O. and Ramni, J. L. (2015). Traditional ethnoveterinary medicine in East Africa: a manual on the use of medicinal plants. The World Agro forestry Centre (ICRAF), Nairobi, Kenya. pp. 88-218.
- Olobatoke, R.Y. and Okaragu, B. (2021). Scent leaf (*Ocimum gratissimum*) meal improved the growth performance and lowered blood cholesterol level of cockerels. *Int. J. Vet. Sci. Anim. Husbandry*, 6:1, 23-27.
- Pica-Ciamarra, U., Tasciotti, L., Otte, J., and Zezza, A. (2014). Livestock in the household economy: Cross-Country evidence from microeconomic data. *Development Policy Review*, 33:1, 61–81.
- Swanepoel, F., Stroebel, A. and Moyo, S. (2010). The role of livestock in developing communities: Enhancing multifunctionality. Cape Town, South Africa: University of the Free State and CTA
- Vinothraj, S., Alagesan, P., and Siva, M. (2019). Assessment of the performance of different breeds under backyard poultry farming system in Erode District. *Int. J. Curr. Microbiol. App. Sci.* 8:09, 1138-1141.