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Awareness and Perceived Efficiency of Tagiri (*Lagenaria breviflorus*) among Poultry Farmers in Ido Local Government Area, Oyo State, Nigeria

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ABSTRACT: The study investigated the awareness and perceived efficiency of Tagiri (*Lagenaria breviflorus*) among poultry farmers in Ido Local Government Area, Oyo State, Nigeria using data obtained from eighty well-structured questionnaires. The result showed that 90.0% of the respondents were male, 60% had primary and secondary education and 68.8% practice intensive system of management. The result also revealed that 50.0% are aware of the antimicrobial property used to treat and control bacterial infection, 46.6% are aware that it has antibacterial property which suppresses the growth of bacterial and their ability to reproduce. It also revealed that 93.1% of the respondents used *Lagenaria breviflorus* for medicinal purpose. In conclusion, it was examined that majority of the farmers used Tagiri in treating poultry diseases. It was therefore recommended that the extension agents should further put more effort by sensitizing the farmers on the benefits of this medicinal plant for healthy growth in poultry management and since it is effective in treating poultry disease, it should also be adopted for other livestock.

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Lagenaria is a genus of gourd-bearing vines and is indigenous to tropical Africa (Morimoto *et al.*, 2004). *Lagenaria* has been useful in Ethno-veterinary (rural poultry health management). A specie of *Lagenaria breviflora* is a seasonal creeping plant of Gourd family which are found in most of the African countries (Okwu, 2006). *Lagenaria breviflora* popularly called 'Tagiri' (Christmas melon) in the South-western part of Nigeria, is an important plant belonging to the family Cucurbitaceae (Yasuyuki *et al.*, 2005). It is one of the collections of West Tropical African's fruits, a perennial climber ascending to the forest canopy generally common in tropical Africa. The leaves are extremely rough and scrape while the fruits are dark green with creamy blemish, and are oval to 9cm long. The fruit is widely used in traditional medicine in West Africa as an herbal remedy for a wide range of gastrointestinal disorders and the treatment of human measles. Some of the medicinal values of these plants

lies in phytochemicals mostly alkaloids, tannins, flavonoids and phenolic compounds which produce definite physiological actions on the human body (Sofowora, 2008). There are several infectious and parasitic diseases which hamper poultry productivity. Growth, commercialization, profitability, and sustainability of poultry business activities operated across Ethiopia are found to be severely constrained due to diseases (Shapiro *et al.*, 2015). Sambo *et al.*, 2015 reported from the research made that poultry producers graded disease as the most important problem of the poultry subsector. Specific infectious and parasitic diseases of poultry are economically important and a threat to public health (Sambo *et al.*, 2015). However, the reported occurrence of infectious and parasitic diseases varies significantly across the country (Luu *et al.*, 2013). In the case of coccidiosis, a wide range of occurrence from a minimum of 16.92% (Molla and Ali, 2015; Molla *et al.*, 2015) to a

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maximum of 71.67% (Dinka and Tolossa, 2012) was reported in various areas across time. Poultry disease management involves taking steps to ensure good hygiene and increasing the standard of cleanliness as well as containment to reduce the risk of introducing disease into the flock. It involves immunity practices, medication and mitigation (Fasina *et al.*, 2012). Application of standard immunity measures is vital in protecting poultry birds from any diseases (Dorea *et al.*, 2010). Researches in recent times have accumulated evidences advocating parallel shift to therapeutic intervention of medicinal plants to prevent and treat array of diseases including gastric ulcer. Such plants have excellent attributes ranging from non-toxicity, efficacious, easy accessibility and affordability e.g *Lagenaria breviflorus* (Edeoga *et al.*, 2005). Many research works have been reported on the medicinal uses of the *Lagenaria breviflorus*, therefore this paper investigated the awareness and perceived efficiency of Tagiri (*Lagenaria breviflorus*) among poultry farmers in Ido Local Government Area, Oyo State, Nigeria.

MATERIALS AND METHODS

The study was carried out in Ido Local Government Area (L.G.A) of Oyo State (Fig. 1) with its headquarters in Ido. The local government is located in the rain forest zone of Nigeria between latitude $6^{\circ} 45' N$ and $9^{\circ} 41' N$ and longitude $2^{\circ} 30' E$ and $5^{\circ} 15' E$. It has an area of 986km^2 and a population of 103,261 at the 2006 population census. It shares boundaries with Oluyole, Ibarapa East, Akinyele, Ibadan South West, Ibadan North West local governments in Oyo state and Odeda Local Government in Ogun state. Ido Local Government Area covers a large hectare of land which is suitable for animal rearing, vast forest reserves and rivers. The inhabitants of this area are predominantly Yoruba with few Hausa, Igbo, Fulani and their major occupations are farming as they also grow cash crops like Cocoa, Palm oil, Timber, and food crops such as Maize, rice, and also livestock production majorly poultry and pigs production.

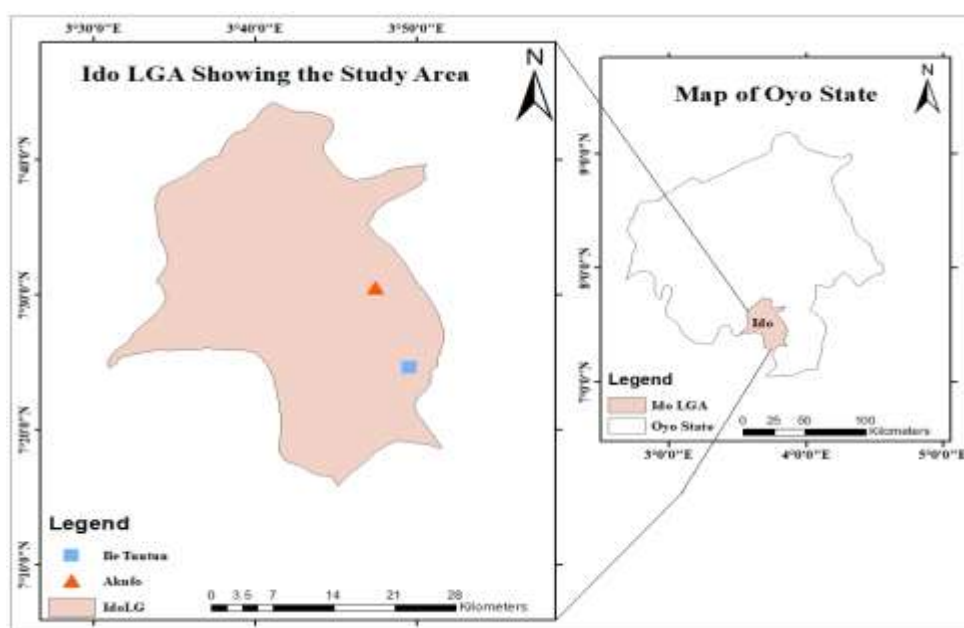


Fig. 1: Study Area

The study populations were the people of Ido Local Government while the target populations were the poultry farmers in the study area. Multistage sampling techniques were used to select the household and the wards used for this study.

Stage 1: Identification of Wards in Ido Local Government: There are 10 wards in Ido Local Government which include Aba emo, Akinware,

Akufo, Apete, Batake, Fenwa, Erinwusi, Ido, Ogundele, Omi adio.

Stage 2: Random Selection of Wards: Out of the 10 wards in Ido Local Government 4 wards were selected which are Akufo, Apete, Ido and Omi adio.

Stage 3: Simple Random Sampling of Respondents in Each Ward: Simple random sampling techniques were

used to select 20 respondents in each wards making a total of eighty (80) respondents selected for the study.

Primary and Secondary data were used for the study. Primary data was gotten from the field survey through the administration of well-structured questionnaire. The structured questionnaire was used to solicit information from the respondents on issues that bothers on the set objectives of the study. The secondary data was gathered from related journals and library.

Data Analysis: The data obtained was analyzed using mean, frequency and percentage.

RESULTS AND DISCUSSIONS

Table 1 shows that majority of the respondents were males which accounted for 90% while the females accounted for 10%. This may be attributed to the fact that poultry enterprise is a highly risky venture, labour intensive and characterized by uncertainties which in most cases can only be handled by men as noted by (Ironkwe and Ajayi, 2007). The findings concur with those of Babatunde *et al.*, (2012) and Babalola (2014) who reported that the majority of poultry farmers in Nigeria were males. The information gathered on the age of the respondents' shows that, most of the respondents are within the age bracket of above 50 were 36.3% followed by 41-50, 31-40 and 20-30 which accounted for 25.0%, 25.0% and 13.8% respectively. The table further showed that 71.3% of the respondents are married which implied that they have responsibilities to cater for and also it helps to reduce cost of labour as similar to findings of Adebisi *et al.*, (2015), also the table further showed that 42.5% of the respondents practice Islam religion while 35.0% practice Christianity which could be attributed to the fact that the study is Islam dominated. The table further showed that most of the respondents with 30.0% has secondary education and 15% having tertiary education which implies that the level of education could influence their utilization of medicinal plants for healthy growth and development. This corresponds with the findings of Swanson (2008) which argued that education enables farmers to make informed decision regarding adoption and managing their lives successfully to cope with everyday problem and to realize their opportunities. This table also showed that (35.1%) of the respondents has experience which ranges from 1-5 years, 23.5% had experience between 6-10 years, (20.0%) fall between 11-15 years, (12.6%) had experience between 16-20 years, and (8.8%) were between 21-30 years in poultry farming. Majority of the respondents had between 21,000 to 40,000 Naira (34.0%) as their income generated in the study area. This table showed that 15.0% household size of the

farmers are less than four, 63.8% ranges from 4-6 which could be attributed to the fact that majority tends to focus more on their business enterprise for increased productivity. This table showed that majority (48.8%) of the respondents practice broiler rearing. It also showed that majority (68.8%) of the respondents practice intensive system of management which can be as a result that they believe that proper caring and management could aid the growth of the poultry birds.

Table 1. Socio economic characteristics of the respondents

Variables	Frequency	Percentage
Gender		
Male	72	90
Female	8	10
Age		
<30 Years	11	13.8
31-40 Years	20	25
41-50 Years	20	25
> 50 Years	29	36.3
Marital Status		
Single	11	13.8
Married	57	71.3
Widow	12	15
Religion		
Christianity	28	35
Islam	34	42.5
Traditional	18	22.5
Level of Education		
No formal Education	20	25
Primary	24	30
Secondary	24	30
Tertiary	12	15
Year of Experience (Years)		
<=5	28	35.1
6-10	19	23.5
11-15	18	20
16-20	8	12.6
>=21	7	8.8
Income (Naira)		
<21,000	27	33.5
21,000-40,000	27	34
40,001-60,000	21	26.2
60,001-80,000	4	5.1
>80,000	1	1.2
Household Size		
< 4	12	15
4-6	51	63.8
>6	17	21.2
Types of Poultry		
Broiler	39	48.8
Cockrel	17	21.3
Layers	24	30
System of Management		
Extensive	2	2.5
Intensive	55	68.8
Semi-intensive	23	28.8

Source: Own survey

Table 2 shows the level of awareness about *L. brevisflorus* among poultry farmers, it reveals that majority (50%) of the respondent are aware of antimicrobial property i.e. they believe that it treats and controls bacterial infection in poultry production

which is attributed to the findings of Tomori *et al.*, (2007). It also reveals that majority (63.8%) of the respondents are aware that *Lagenaria breviflorus* helps to improve the immunity of poultry birds whereby it is a remedy for viral diseases in poultry according to Abbas *et al.*, (2012). It reveals that majority (77.6%) of the respondents are aware that *Lagenaria breviflorus* is used to treat Newcastle disease by using the extract from the tagiri which concur with the findings of Banjo *et al.*, (2013). It also shows that majority (48.3%) of the respondents are aware that *L. breviflorus* has antibacterial property which implied that it suppresses the growth of bacteria and their ability to reproduce. The table also shows that majority (72.4%) of the respondent are aware that *Lagenaria breviflorus* helps to improve the haematology characteristics of poultry birds which implied that it is used to treat disorders of blood and bone marrow in poultry birds which concur to the findings of Onunkwo *et al.*, (2019).

Table 2. Level of awareness about *Lagenaria breviflorus* among poultry farmers

Variables	Frequency	Percentage
Anti-microbial property		
Little extent	29	50
Large extent	5	8.6
Very large extent	24	41.4
Improve the immunity of poultry birds		
Little extent	13	22.4
Large extent	8	13.8
Very large extent	37	63.8
Is used to treat Newcastle disease		
Very little extent	1	1.7
Little extent	2	3.4
Large extent	10	17.2
Very large extent	45	77.6
Has antibacterial property		
Little extent	27	46.6
Large extent	3	5.2
Very large extent	28	48.3
Improve heamatology of poultry birds		
Little extent	7	12.1
Large extent	9	15.5
Very large extent	42	72.4

Source: Own survey

Table 3 shows the perceived efficiency of *Lagenaria breviflorus*, it reveals that majority (93.1%) of the respondents make use of *Lagenaria breviflorus* which is because of its effectiveness. The table shows that (91.3%) of the respondents talks about the effectiveness according to (Sofowora, 2008). The table also shows that majority (60.3%) of the respondents' talks about the fast response after being used for the poultry birds. The table further shows that majority (74.1%) of the respondents use it due to its effectiveness as conventional medication. From the

information gathered, 100% of the respondents. The table further shows that majority (70.7%) of the respondents use *Lagenaria breviflorus* due to its cost and effectiveness which implies that people tends to use product that is effective and cheap. The table also shows that majority (89.7%) of the respondents can quantify the differences in monetary terms. The table further explains that (94.8%) of the respondents can recommend *Lagenaria breviflorus* to their fellows farmers which may be due to the benefits embedded in it. The table also shows that majority (93.1%) of the respondents had seen the what could serve as a barrier to the usage of this medicinal plant which may be due to the challenges they have encountered in the time past.

Table 3. Perceived efficiency of *Lagenaria breviflorus*

Variables	Frequency	Percentage
Do you make use <i>L. breviflorus</i>		
Yes	54	93.1
No	4	6.9
Is it effective?		
Yes	53	91.3
No	1	1.7
Responsiveness		
Slow	10	17.2
Very slow	5	8.6
Fast	35	60.3
Very fast	4	6.8
Is it effective as conventional medication?		
Yes	43	74.1
No	11	18.9
Is there differences between the costs of treatment?		
Yes	54	93.1
Is <i>Lagenaria breviflorus</i> effective?		
Yes	41	70.7
No	13	22.4
Monetary terms		
Yes	52	89.7
No	2	3.44
Can you recommend it?		
Yes	54	93.1
Can anything be a barrier to the usage of <i>Lagenaria breviflorus</i>?		
Yes	54	93.1

Source: Own survey

Conclusions: The use of alternative or medicinal plants will continue to be an important part of health care management of poultry birds in small holders in villages since available raw materials has proven effective and economical because of difficulty in obtaining services of veterinary doctors. The findings in this study can be used as a direct option in replacing antibiotics and growth promoting drugs in poultry production especially in developing countries.

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REFERENCES

- Abass, RZ; Colwell, DD; Gilleard, J (2012). Botanicals: an alternative approach for the control of avian coccidiosis. *World Poultry Sci. J.* 68(2): 203-215.
- Babalola, DA (2014). Determinants of Farmers' Adoption of Agricultural Insurance: case of poultry Farmers in Abeokuta Metropolis of Ogun State, Nigeria. *British J. Poultry Sci.* 3: 36-41.
- Babatunde, RO; Adekunle, A; Olagunju, FI (2012). Effect of poultry production on poverty status. *J. Agric. Rural Develop.* 2: 565-578.
- Banjo, TA; Kasim, L; Iwalokun, B; Mutiu, W; Olooto W; Mba, N; James, E; Shorunmu, T (2013). Effects of different extraction methods on in-vitro antimicrobial properties of *Lagenaria breviflora* whole Fruits. *New York Sci. J.* 6 (10); 60-65
- Dinka A; Tolossa Y (2012). Coccidiosis in fayoumi chickens at debre zeit agriculture research center poultry farm. *Ethiopia. Eur. J. Appl. Sci.* 4:191-195.
- Edeoga, HO; Okwu, DE; Mbaebie, BO (2005). Phytochemical constituents of some Nigerian medicinal plants. *African Journal of Biotechnology.* 4 (7): 685-688
- Fasina, FO; A Ali; JM Yilma, O Thieme; P Ankers (2012). The cost benefit of biosecurity measures on infectious diseases in the Egyptian household poultry. *Prev. Vet. Med.* 103:178-191.
- Ironkwe, MO; Ajayi, F (2007): Profitability analysis of broiler production in Oyibo Local Government Area of Rivers State, Nigeria. *Global J. Agricultural Sci.* 6: 195-198.
- Luu, L; Bettridge, J; Christley, R; Melese, K; Blake, D; Dessie, T; Wigley, P; Desta, T; Hanotte, O; Kaiser, P; Terfa, Z; Collins, M; Lynch, S. (2013). Prevalence and molecular characterization of *Eimeria* species in Ethiopian village chickens. *BMC Vet. Res.* 9; 208.
- Molla W; Teshome D; Almaw, G; Temesgen, W; Alemu, S. (2015). Poultry coccidiosis infection in local chickens from three selected districts of north Gonder Zone, Ethiopia. *Ethiopia Vet. J.*19: 1-9.
- Molla, B; Ali A (2015). Epidermiological study on poultry coccidiosis: prevalence, species identification and post mortem lesions in growing chickens in Kombolcha, North-Eastern. Ethiopia. *J. Vet. Med. Animal Health.*7: 1-8.
- Morimoto, Y; Maundu, P; Fujimaki, H; Morishima, H (2005). Diversity of landraces of the white-flowered gourd (*Lagenaria siceraria*) and its wild relatives in Kenya: Fruit and seed morphology. *Genetic Resources and Crop Evolution.* 52:737-47.
- Okwu, DE (2006). Phytochemicals and vitamin content of indigenous spices of South Eastern Nigeria. *J. Sustain Agric. Environ.* 6:30 - 34.
- Onunkwo, DN; Anyaegbu, BC; Ezike, JC; Daniel-Igwe, G (2019). Dietary substitution of soya bean meal with processed African yam bean meal as protein source in the diets of finisher broilers. *Nig. J. Animal Producti.* 46(2): 118-127.
- Sambo E; Bettridge J; Dessie T; Amare A; Habte T; Wigley P; Christley R.M. (2015). Participatory evaluation of chicken health and production constraints in Ethiopia *Prev. Vet. Med.*; 118 (2015), pp. 117-127.
- Shapiro B.I; Gebru G; Desta S; Negassa A; Nigussie K; Aboset G; Mechal H. International Livestock Research Institute (ILRI); Nairobi, Kenya: 2015. Ethiopia Livestock Master Plan.ILRI Project Report.
- Sofowora, A (2008). *Medicinal Plants and Traditional Medicine in Africa*, Spectrum Books Limited, Ibadan, Nigeria. 3rd edition. Pp 70-74; 175-180; 201-202.
- Tomori, OA; Saba, AB; Dada-Adegbola, HO (2007). Antibacterial activity of ethanolic extract of whole fruit of *Lagenaria breviflora* Robert. *J. Animal Vet. Adv.* 6(5): 752-757.
- Yasuyuki M; Patrick M; Hiroshi F; Hiroko M (2005).Diversity of landraces of the white-flowered Gourd (*Lagenaria siceraria*) and its wild relatives in Kenya. *Genetic Resources Crop Evolution.* 52: 737-747.