



Consumer's perception on duck meat attributes and dishes the consumers prepare to consume duck meat

M.K. PADHI*, S.C. GIRI AND S.K. SAHOO

Regional station, ICAR-Directorate of Poultry Research, Bhubaneswar-751003, Odisha, India

(Received on March 17, 2023; accepted for publication on April 17, 2024)

ABSTRACT

Padhi, M.K., Giri, S.C. and Sahoo, S.K. 2024. Consumer's perception on duck meat attributes and dishes the consumers prepare to consume duck meat. *Indian Journal of Poultry Science*, 59(1): 65-68.

Consumers purchasing duck for meat purpose were interviewed for their liking of duck meat, the dishes they prepared for consumption and their perception on duck meat or duck product. This study was conducted on consumers purchased duck from regional station of ICAR-Directorate of Poultry Research. The average weight of the birds purchased by the consumers was 1.76 ± 0.12 kg. For meat purpose more than 60 % preferred White Pekin followed by Desi and Khaki Campbell. The dishes consumers prepared from duck meat, maximum (62%) informed for Duck meat Kasha (semisolid gravy), followed by Duck meat curry. Good taste of duck meat was informed by a majority of consumers (66.87%). Other positive attributes of duck meat as percepts by the consumers were medicinal value, appealing colour, taste like mutton or chevon or desi chicken and better digestion. Maximum (56.57%) respondents reported no negative attributes however, some respondents reported negative attributes of duck meat like difficult to process (scalding), dishes preparation require more condiments than chicken, fishy odor if meat preparation is not consume hot and meat takes more times to boil than chicken. The study revealed that though duck meat is liked by the consumers purchasing duck for meat purpose but the negative attributes as reported by them may be looked into by the researcher for popularization of duck meat amongst the consumers.

Keywords: Consumers, Duck meat, Duck meat dishes, Attributes of duck meat

INTRODUCTION

Duck production in India is being popular after chicken in different states having large water bodies, river, lakes or marshy land. Ducks are also popular for their integration with other agricultural activities like paddy and fish. Though duck has many advantages compared to chicken but still the popularization of duck farming and consumption is low in the country compared to chicken. The chicken industry is well organized in the country but in duck the same is not there. In the country there exists duck market in some states like West Bengal, Assam, Kerala, Tripura and other coastal states as well as Jammu and Kashmir and north eastern states and states having large water bodies where demand for duck meat and eggs are exists. Even the consumers are happy to pay more for the duck and duck meat than chicken. The low availability of duck for meat purpose also makes it costlier to meet the localized demand. Further, there are many negative perceptions on duck meat by the consumers, thus making it unpopular compared to other popular meat species like chicken, goat and sheep meat. This may be one reason for less popularization and consumption of duck meat by the masses. Studies on different parameters of duck production, reproduction and other parameters as well as duck production system are documented in the country (Padhi, 2014, Cyriac *et al.* 2020, Padhi *et al.* 2021, Giri *et al.* 2021, Padhi *et al.* 2022, Padhi *et al.* 2022, Padhi *et al.* 2023, Kamal *et al.*

2023). However, study on perception of consumers consuming duck meat about the duck meat attributes and how they are consuming duck meat, the type of the breed they prefer to purchase is lacking. Keeping this in view the present study was conducted to know the consumers perception on duck meat, and dishes they prepare for consuming the same and their perception of positive and negative attributes it have compared to any other meat. The study may help to prepare strategies to popularize duck meat consumption by the consumers and by knowing the positive and negative perception of duck meat by the consumers; the same may be given emphasis for research as well as to popularize the duck consumption by the masses.

MATERIALS AND METHODS

The consumers visiting to purchase live duck for meat consumption to the Regional Station, ICAR-Directorate of Poultry Research, Bhubaneswar (earlier Regional centre, ICAR-Central Avian Research Institute) were the target group being interviewed on various aspects of duck meat and the preparation or dishes they were preparing from duck meat. All the consumers interviewed were adults and male. The approximate age of the ducks being kept at the centre for sale were varies from two months to 18 months. The local name of the preparation and some short description on the same were also collected in the interview. A structured directional interview schedule was prepared and the consumers purchasing duck for meat from the station were asked

*Corresponding author Email: padhi16@rediffmail.com

regarding preference of breed for meat purpose, dishes the consumers prepare for consumption of the duck meat, perception of the consumers in respect to duck meat both positive and negative if any. Those respondents provided answers to different attributes for duck meat and these were recorded. A total of 132 numbers of consumers were interviewed and as the birds were sold on weight basis the weight of the birds and number were recorded to calculate the average weight of the birds the consumers purchased. The data collected from the respondents were recorded and were analyzed using standard statistical methods to calculate descriptive statistics such as mean, frequencies and percentage as per Snedecor and Cochran (1994).

RESULTS AND DISCUSSION

The average weight of the birds purchased by the consumers was found to be 1.76 ± 0.12 kg. This is because in our centre more Khaki Campbell and indigenous duck variety (Kuzi) were available for the sale compared to higher body weight birds like White Pekin. The number of birds purchased varies from minimum one to maximum five birds per consumers those are taking the duck for meat consumption. Even some consumers from other district were taking more ducks as they have to distribute to their relatives and friends at their locality for consumption of duck meat. The body weights observed in the present study was higher than the indigenous adult duck body weights reported by Kamal et al. (2019) and Padhi et al. (2021). This is mostly due to in the present study different breeds and different ages of duck are being sold and the White Pekin ducks which weigh more were also included in the average calculation. The duck types preferred by the consumers for meat purpose are presented in Table 1. More preference for White Pekin for meat purpose may be due to its higher weight and more yield than other breeds. It is to mention here that in our centre the ducks were sold when culled hence the age of the duck during market varies. Many times adult ducks were sold to the farmers. Moti duck were not available for sale in our centre and as these type of duck are not being reared in large number in coastal district the consumers may not be aware about the delicacy and good attributes of Moti duck and hence low in preferences among the consumers. Padhi et al. (2024) reported that demand for Desi Ducks were more

Table 1: Duck type preferred by the consumers from our centre to consume as meat (n=132)

Sl.No	Particular	Frequency	Percentage (%)
1	White Pekin	80	60.61
2	Desi (Kizi)	31	23.49
3	Khaki Campbell	22	16.67
4	All	2	1.52
5	Moti	1	0.76

compared to Khaki Campbell and White, which is not in agreement with the present findings, this may be due to liking of consumers for smaller ducks and preferences for Desi variety. Further the study data was collected from retailers shop those may prefer to keep more Desi ducks.

The dishes the consumers prepared from the duck meat as informed are summarized in Table 2. The main three dishes they prepared from duck meat were as follows. Duck meat Kasha: in this duck meat is cooked with different spices and condiments and is cooked by continuously braising the meat over a low to medium flame. Less water is added to boil the meat in low flame and the end product is duck meat with thick, spicy, semi-solid gravy. Duck meat curry: In this dish preparation the process and condiments as well spices like the Kasha may remain same but more water is added and the gravy is little watery whereas in Kasha it is semi solid. Duck meat Pakoda: in this the duck meat is marinated with different condiments and spices and then the meat is deep fried in oil for cooking. Some consumers roasted the whole duck or duck meat with spices at high temperature and consumed the same. It is to mention here that the number of respondents increased in this study due to the reason that respondents like different preparations. Most of the consumers informed that Kasha is the dish they like most for the consumption of the duck meat. This preparation may be liked by the consumers more as the condiments and spices are well attached with the meat pieces due to semi solid gravy. More than 30 % people like to consume duck meat curry and mostly they consume it with rice. The percentages of people consuming duck meat as roast or pakodawas low. This may be due to the taste of the consumers for a particular preparation. Here it is to mention that once the consumers like the preparation or dishes they will like to prepare and consume the same. Further, it may be one reason that the duck meat is not available always and in the market the meat of duck is costlier than chicken so once they purchase from our centre they will like to prepare the best dishes they wants to consume.

Table 2: Dishes the consumers prepares to consume the duck meat (n=190)

Sl.No	Particular	Frequency	Percentage (%)
1	Duck meat Kasha	119	62.63
2	Duck meat Curry	58	30.53
3	Pakoda/roast	10	5.26
4	others	3	1.58

Perception of the consumers about duck meat and its preparation both positive and negative attributes are presented in Table 3. In the table the number of observations increased because same consumers also briefed different attributes rather than only one. On

Table 3: Positive duck meat quality attributes as well as negative attributes as informed by the consumers purchasing duck for meat purpose and consuming duck meat (n=175)

Sl.No	Particular	Frequency	Percentage (%)
a) Positive attributes			
1	Good taste	117	66.87
2	Taste like mutton and/or chevon or better than mutton and chevon	16	9.14
3	Other like better blood circulation, better digestion, clear of bowel/stomach	15	8.57
4	Medicinal value to cure epilepsy, arthritis, asthma	13	7.43
5	Taste like desi chicken and better than chicken	8	4.57
6	Appealing colour, good in protein and minerals	6	4.55
b) Negative attributes			
1	No negative attributes	99	56.57
2	Very tasty but preparation require more condiments than chicken	39	22.28
3	Taste fishy if consumed the dishes cold	29	16.57
4	Difficulty in processing (Scalding)	4	3.03
5	More times takes to boil (tough meat than chicken)	4	3.03

positive attribute maximum % informed about the good taste of the duck meat. Even some consumers informed that it tastes like mutton and chevon and some cases better than the mutton and chevon. This may be due to dark meat of the duck and preparation liked by the consumers. Some consumers (4.57 %) informed that it taste like desi chicken and better than chicken. Few of the respondents informed that the meat of duck is having some medicinal value and effective for the person suffering from epilepsy, arthritis and asthma. These needs to be studied but no scientific reports are available on this. Colour of the meat and its nutrient as good attributes were reported by few of the respondents. Some respondents reported its effect on blood circulation, better digestion, and or clearing the bowel. It was reported by Mazmanyman (2021) that presence of high fats in duck meat, it possess stronger, denser flavor, closer to red meat than chicken meat. Duck meat is higher in most vitamins as compared to chicken. It possess almost three times more vitamin B1 and over two times more vitamin K than chicken. Other vitamins available in higher amounts in duck meat than chicken are vitamin B2, vitamin E, vitamin A, and folate. Meat of duck also contains vitamin D, which is absent in chicken. Duck meat is nutritionally denser, having 52% water, while chicken meat contains 60 % water (Mazmanyman, 2021). These may be the reasons for liking of duck meat by the consumers. It was reported in an experiment in human being that intake of processed or unprocessed red meat was significantly associated with all-cause of mortality, but intake of chicken or fish was not (Zhong *et al.* 2020); indicating the poultry meat is comparatively better than the other types of meat. When asked for any negative attributes of duck meat more than 56 % respondents reported no negative attributes perception. About 22 % of consumers report that meat is tasty but preparation or dishes require more condiments and spices than chicken. Many of them

also reported that difficulty in processing of duck than chicken the reasons may be that the scalding temperature for duck is more than chicken and scalding is difficult in duck. Those having perception of negative attributes also reports that the dishes prepared from duck meat if not consumed when hot will give fishy smell. This may be due to the fact that the duck of our centre were given fish meal in diet and it is a fact that when the duck consumes lot of fish then fishy flavor may be there and even in duck reared in backyard if they have access to fish pond or any water sources having fish then the meat may have some fishy smell. Literature report indicate that duck meat is significantly darker in color and high in myoglobin and iron content compared to chicken meat. Due to this fact, duck is often considered to be culinary red meat and more level of fats gives duck meat a stronger, denser flavor, compare to red meat than chicken (Mazmanyman, 2021). Culinary preparation from ducks eggs also gives fishy smell as reported in literature (Padhi, 2023). Some of the respondents informed that it takes more times to boil and meat is tougher than chicken. This might be due to the age of the birds (Duck) is generally more when sold compared to chicken. It was reported that despite the high caloric values in duck meat, more intake of it did not negatively alter body indices, such as body weight, fat mass, body mass index, body fat, or waist to hip ratio. Same study also suggests that the consumption of duck-meat significantly increased the RBC count and also decreased blood urea nitrogen and LDL-cholesterol concentrations in adult males (Lee *et al.* 2010). This study indicates the good quality of the duck meat though scientifically not known to consumers but many of the duck meat consumers conveyed about the good quality of the same.

The study revealed that the consumers preferred White Pekin for meat purpose followed by desi duck. Duck meat Kasha was the most preferred dish being

prepared and consumed by the consumers followed by duck meat curry. Duck meat has more good attributes than bad attributes as reported by the consumers. The positive attributes may be given emphasis for the popularization of duck meat consumption amongst the new consumers so that duck production will increase in the country. Ameliorating measures of the few negative attributes as reported by the consumers may be carried out for suitable remedial measures if any.

REFERENCES

- Cyriac, S., Joseph, L., Anitha, P. and Gorge, G.T. 2020. Effect of individual selection on growth and carcass characteristics in Kuttanad ducks (*Anas platyrhynchos domesticus*). *Indian Journal of Animal Research*, **B3910**: 1-6.
- Giri, S.C, Padhi, M.K. and Sahoo, S.K. 2021. Improving fertility and hatchability in duck during summer months. *Indian Journal of Poultry Science*, **56**: 249-252.
- Kamal, R, Chandran, P.C., Dey, A, Padhi, M.K., Giri, S.C. and Bhatt, B.P. 2023. Status of Indigenous duck and duck production system of India—a review. *Tropical Animal Health and Production* **55**: 1-9.
- Kamal, R., Dey, A., Chandra, P.C., Mohanta, R.K., Giri, S.C. and Barari, S.K. 2019. Phenotypic and morphometric characterization of Desi duck of Odisha. *Indian Journal of Animal Sciences*, **89**: 334-336.
- Lee, C.J., Lim, Y.T., Kang, S.H., Jung, H.S., Kim, O.H, Sung, S.H. and Song, H. 2010. Effect of Duck-meat Intake on Adult Disease Risk Factors in Adult Human Males. *Korean Journal of Food Science and Animal Resources*, **30**:95-956.
- Mazmany, V. 2021. Chicken meat Vs duck meat-health impact and nutrition comparison. <https://foodstruct.com/compare/chicken-meat-vs-duck-meat> (assessed March 14, 2023)
- Padhi, M.K., Giri, S.C., Sastry, K.V.H., Sahoo, S.K., Bais, R.K.S. and Saxena, V.K. 2022. Genetic and phenotypic characterization of Kuzi ducks of Odisha and evaluation of carcass quality. *Indian Journal of Animal Sciences*, **92**: 196-201.
- Padhi, M.K., Giri, S.C. and Sahoo, S.K. 2021. Production performance and egg quality in Kuzi ducks of Odisha. *Indian Journal of Poultry Science*, **56**: 15-18.
- Padhi, M.K., Giri, S.C. and Sahoo, S.K. 2022. Genetic characterization for growth traits and evaluation of production performance of Kuzi ducks being selected for higher eight week body weight. *Indian Journal of Poultry Science*, **57**(3): 215-223.
- Padhi, M.K., Giri, S.C. and Sahoo, S.K. 2024. Response of chicken shop retailer on various aspects of marketing of duck meat and egg. *Discovery*, **60**: e11d1419.
- Padhi, M.K. 2023. Unveiling consumers' perception towards duck egg and its culinary preparations in Odisha state. *Journal of Indian Society of Coastal Agricultural Research* **41**(2): 140713 (2023) <https://doi.org/10.54894/JISCAR.41.2.2023.140713>.
- Padhi, M.K. 2014. Evaluation of indigenous ducks of Odisha, India. *World's Poultry Science Journal*, **70**: 617-626.
- Padhi, M.K., Sahoo, S.K., Sastry, K.V.H., Bais, R.K.S. and Giri, S.C. (2023) Evaluation of ducks and Vanaraja chickens under backyard rearing systems in Nabarangpur district of Odisha. *Indian Journal of Poultry Science*, **58**(2):173-177.
- Snedecor, G.W. and Cochran, W.G. 1994. *Statistical Methods* (8th ed.), Affiliated East-West Press, New Delhi, India and Iowa State University Press, Ames.
- Zhong, V.W., Horn, L.V., Greenland, P., Carnethon, M.R., Ning, H., Wikins, J.T., Liody-Jones, D.M. and Allen, N.B. 2020. Associations of processed meat, unprocessed red meat, poultry, or fish intake with incident cardiovascular disease and all-cause mortality. *JAMA Internal medicine*, **180**(4):503-512. doi:10.1001/jamainternmed.2019.6969