

Effect of Protein Ratio in Food on the Daily Food Consumption Rate for House Sparrow *Passer domesticus niloticus*.

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ABSTRACT

The present work aimed to study the effect of protein ratio on the daily food consumption rate of house sparrow *Passer domesticus niloticus*, the results indicated to, the house sparrow *Passer domesticus niloticus* prefer the diet contain a high ratio from protein about food contain low ratio protein, the food consumption from high food protein increased during the experimental period. Statistical analysis showed that; consumption ratio was significantly different in the different concentrations, while wasn't significant different in four days in consumption ratio.

Keywords:- House sparrow- Protein- Concentration- Diet ratio- food consumption.

INTRODUCTION

Protein is of great importance in terms of its vital value because it contains vital amino acids useful for growth health, and most suitable food for building tissues.

Increased levels of protein are required for breeding, growing chicks and during moult. These are called essential amino acids and can only be sourced from the diet. Of these essential amino acids, several are frequently limited in a typical grain diet, particularly Lysine and Methionine.

Studies on wild finches showed that; some species feed intake goes from being around 98% seed in winter (non-breeding) to over 80% insect component in summer (breeding season). The main value of meat is to boost the quantity and quality of protein in the diet. www.weckepedia

Low protein diets may also lead to a reduction in postweaning growth (Nyachoti *et al.*, 2006).

Dietary protein consists of complex polypeptides, which must be cleaved into dipeptides and amino acids to facilitate absorption. In poultry, the crop, proventriculus, gizzard, pancreas, and small intestine have an active role in protein digestion (Moran, 1982).

MATERIALS AND METHODS

There for this experiments was carried out to obtain the effect of protein ratio in food on the daily food consumption rate for house sparrow *Passer domesticus niloticus*.

All experiments were carried out under laboratory conditions of Ornithology Lab., Agricultural zoology and Nematology Department, Faculty of Agriculture, Al-Azhar University, Cairo Egypt.

Tested birds:-

The birds were caught and placed in the lab until they were adapted, fed for a week, and then transferred to cages of metal wire (25 * 35 * 45 cm). Each cage contained one individual for one week before treatment and was fed on a piece of crushed corn. Treatment of 3 separate individuals the trial lasted 4 days.

For transactions:-

Individuals were fed on a diet with different concentrations until the daily consumption rate of those links was calculated and the extent of the effect of the protein ratio in those relationships was calculated on the daily consumption rate.

Concentrations were 17.1%, 21.23%, and 24.45% protein, as well as corn gluten.

***The diet pure food mixture was provided on an optional basis for each concentration of the diet for each individual as follows;**

- The first treatment (17.1% concentration with 21.23% protein concentration)
- Second treatment (17.1% concentration with 24.45% protein concentration)
- Third treatment (21.23% concentration with 24.45% protein concentration)
- For a period of 4 consecutive days to calculate the daily consumption rate of the diet.

****The second experiment**

The diet was provided in 3 concentrations of 17, 21.23 and 24.45% Protein mixed with those with gluten as follows:-

- The first was 17.1% protein with (17.1% + gluten 1: 1)
- The second was 21.23% protein with (21.23% gluten+1: 1)
- The third was 24.45% protein with (24.45% gluten+ 1: 1)
- For a period of 4 consecutive days to calculate the daily consumption rate of the diet.

RESULTS AND DISCUSSION

Data illustrated in Table (1) and Fig. (1) obtained that;- the high values of food consumption ratio recorded when the birds fed on food contain 24.45% protein with value 13.56g during the experimental period (4 days respectively) in comparison with 17.10 protein followed by 13.46 g when fed on 24.45 % protein in comparison with 21.23% protein.

On the other hand, the lowest values were recorded as 6.46, 6.75g in comparison (17.10% protein with 24.45%protein) and (21.23%protein with 24.45%protein) followed by (7.11 g) in comparison (17.10%protein with 21.23%protein), respectively.

Values 5.21 and 5.17 g recorded as highest values during the 2nd day in treatment (17.1%protein comparison with 24.45%protein) and (21.23 %protein comparison with 24.45%protein).

The lowest values were recorded with 4.61 g and 4.73 g in treatment (17.21 with 21.23%protein during the 3rd and 2nd day, respectively).

The highest values were recorded as 17.43, 16.96 g and 16.21 g in comparison mixed added the gluten with (24.45, 21.23 and 17.10 %protein), the values 3.55g, 3.9 and 4.22 g recorded as lowest values with the same treatments, Table (2) and Fig. (2).

Data showed that;- values(5.9) g were recorded as high food consumption in 2nd day in treatment with

17.10% protein (5.34 and 5.28) g recorded during the first day at 24.45 and 21.23% protein respectively ,

while recorded 5.04, 5.10 5.12 g as the lowest values during the 4th day. Table (2) and Fig. (2).

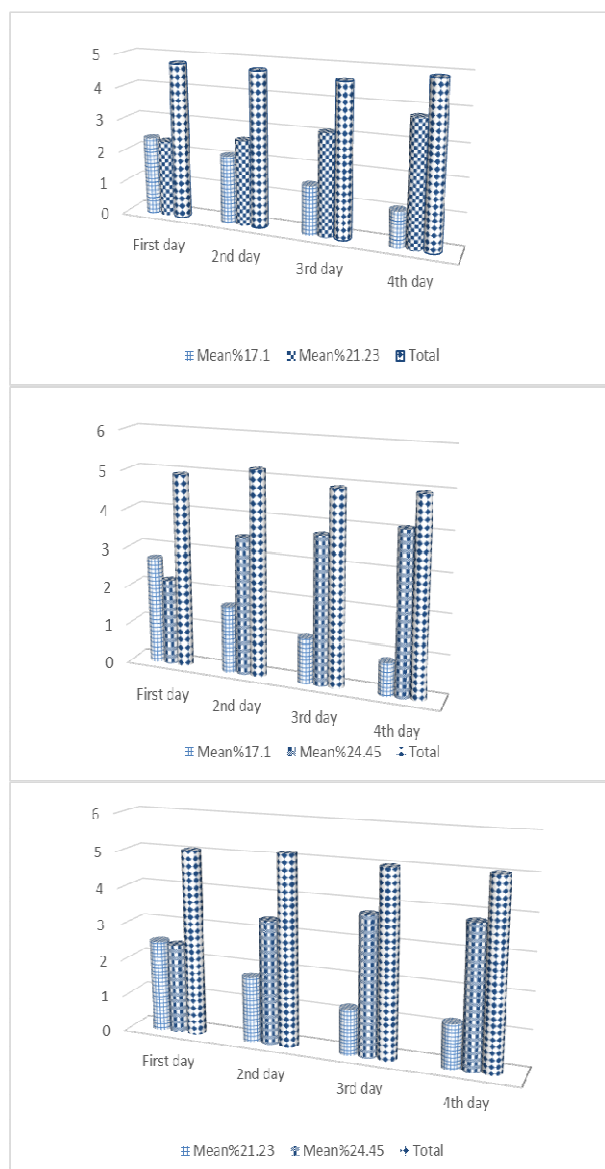


Fig. 1. Food consumption of *Passer domesticus niloticus* in treatment with pure food mixture

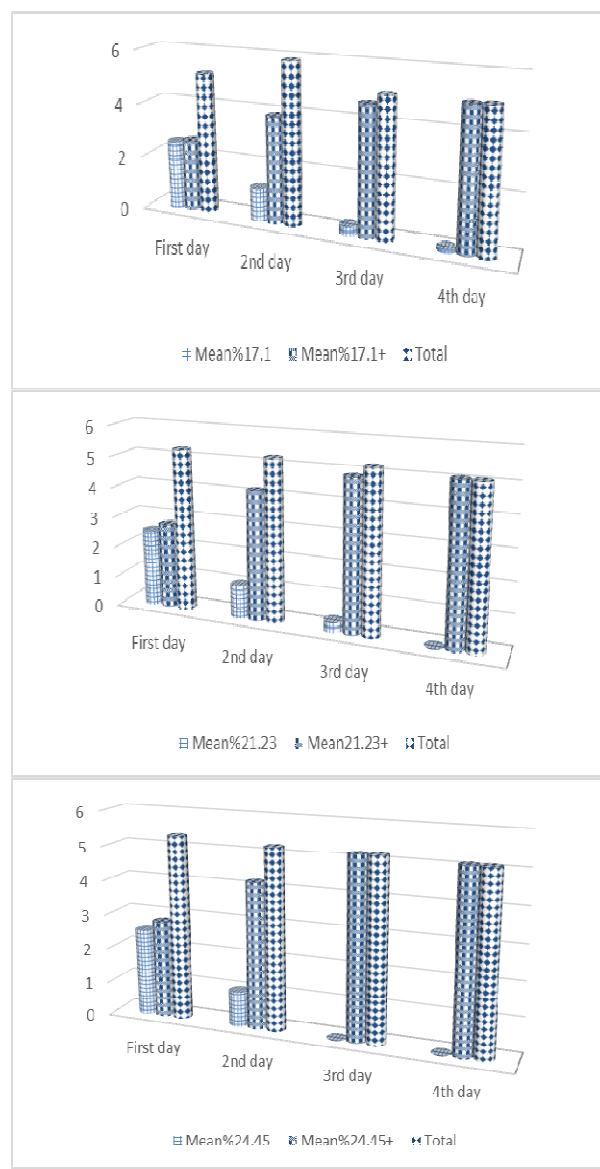


Fig. 2. Food consumption of *Passer domesticus niloticus* in treatment with mixed food mixture.

Table 1. Food consumption of *Passer domesticus niloticus* in treatment with pure food mixture.

Treatments	Concentrations			Concentrations			Concentrations		
	17.1	21.23	Total	17.1	24.45	Total	21.23	24.45	Total
Days	Consumption ratio			Consumption ratio			Consumption ratio		
First day	2.41	2.35	4.76	2.74	2.20	4.94	2.51	2.46	5.07
2 nd day	2.1	2.63	4.73	1.71	3.50	5.21	1.79	3.38	5.17
3 rd day	1.5	3.11	4.61	1.16	3.76	4.92	1.24	3.78	5.02
4 th day	1.1	3.79	4.89	0.85	4.10	4.95	1.21	3.84	5.05
Total	7.11	11.88		6.46	13.56		6.75	13.46	
LSD at 5%	0.625*		0.88 ^{NS}	0.798*		1.12 ^{NS}	0.576*		0.815 ^{NS}

The role of seed chemical traits (nutrient composition, energy contents and presence of secondary compounds) for the selection of foods by granivorous birds and for the evolution of bird granivory was analyzed and compared with the roles of other seed traits such as seed distribution and seed morphology.

The individuals displayed a strong positional preference. When testing each treatment group, birds ate daily significantly more of the food that had higher protein content. Data stated that; Blue-gray Tanagers prefer richer nitrogen foods. Results also demonstrated that Blue-gray Tanagers have remarkable

discriminatory abilities. They reacted to differences in protein content as small as 0.09% fresh matter. Obtained data showed for the first time discriminatory ability and preference of wild frugivorous birds for foods richer in protein under controlled conditions. Our findings support the hypothesis that frugivorous birds can act as selective agents for fruit pulp composition.

Statistical analysis showed that; consumption ratio was significantly different in the different

concentrations, while wasn't significant different in four days in consumption ratio.

Under laboratory study, sparrows preferred wheat, soybean, sorghum, safflower, sunflower and fenugreek respectively but under choice tests, sparrows preferred soybean, wheat, safflower, sunflower, sorghum and fenugreek respectively. Díaz(1996), Bosque and aCalchib (2003) and El-Danasory and Abouamer (2012).

Table 2. Food consumption of *Passer domesticus niloticus* treatment with mixed food mixture

Treatments	Concentrations			Total	Concentrations			Total	Concentrations		
	17.1	Mixed			21.23	Mixed			24.45	Mixed	
Days	Consumption ratio			Consumption ratio			Consumption ratio				
First day	2.53	2.63	5.16	2.51	2.77	5.28	2.52	2.82	5.34		
2 nd day	1.20	3.89	5.90	1.06	4.19	5.25	1.03	4.20	5.23		
3rd day	0.36	4.68	5.04	0.33	4.90	5.23	0.00	5.20	5.20		
4th day	0.13	5.01	5.04	0.00	5.10	5.10	0.00	5.12	5.12		
Total	4.22	16.21		3.90	16.96		3.55	17.43			
LSD at 5%	1.00*			1.42 ^{NS}	1.00*			1.41 ^{NS}	0.89*		

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تأثير نسبة البروتين على معدل الإستهلاك اليومي من الغذاء في عصفور النيل الدوري.

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تم إجراء هذا البحث لمعرفة تأثير نسبة البروتين في غذاء عصفور النيل الدوري وذلك بغرض الاستفادة من النتائج في عمليات المكافحة. أجريت التجارب على مدار 4 أيام متتالية في التجربة الأولى حيث تم تقديم علائق تحتوي على نسب مختلفة من البروتين 17.1، 21.23، 24.45 و 24.45% بروتين. في التجربة الثانية تم خلط هذه العلائق بنسبة 1:1 (عليقة+ جلوتين) حيث يحتوي الجلوتين على نسبة 55% بروتين. أوضحت النتائج أن عصفور النيل الدوري يفضل الغذاء الذي يحتوي على نسبة عالية من البروتين عن التي تحتوي على نسب أقل من البروتين حيث كانت العليقة المخلوطة بالجلوتين أعلى لإستهلاكاً عن الغير مخلوطة بالجلوتين (الخام) وأن التي تحتوي على نسبة 24.45% بروتين هي أفضل في تغذية الطائر تلاها 21.23 وفي النهاية كانت العليقة التي تحتوي على 17.10 بروتين. وإلى وجود فروق معنوية بين معدل استهلاك الطائر من العليقة التي تحتوي على نسبة عالية من البروتين عن التي تحتوي على نسبة أقل من البروتين ولا يوجد فرق معنوي ملحوظ في معدل الإستهلاك بين أيام التجربة.