DIMENSIONAL ELEMENTS OF PHYSICAL APPEARANCE IN STANDARD TYPE UNDULATED BUDGERIGAR *(MELOPSITTACUS UNDULATUS)*

Al. Usturoi, I. Vacaru-Opriş

University of Agricultural Sciences and Veterinary Medicine-Iasi, Romania
e-mail: alexusturoi@yahoo.com

Abstract

Paper purpose consisted in the knowledge of the body weight and body dimensions values in the standard type undulated budgerigars „Melopsittacus undulatus". The biological material comprised 90 parrots, issued from three different aviaries which provided similar husbandry conditions. The traits we studied (body weight, dimensional body features and indexes) were assessed in each aviary, separately by genders, in accordance with the inspection techniques accepted in aviculture. The weightings we run indicated an average body weight of 48.97 g, with no significant statistic differences between aviaries. The results related to the body dimensions indicated either good uniformity for certain studied traits (trunk length, with a mean per population of 4.53 cm; sternum keel=4.18 cm and beak length=1.14 cm), either the existence of highly significant statistical differences for whole body length, whereas population mean was of 19.96 cm, wingspan=28.94 cm, thorax circumference=9.75 cm, cannon perimeter=9.4 mm and tail length=11.13 cm. The existence of certain differences between aviaries, for some of the investigated traits, indicates that body development is not homogenous in the studied population. Consequently, it imposes to establish some elements to define the dimensional standard.

Key words: budgerigars, dimensions, body indexes, standard, breeding

INTRODUCTION

The standard undulated budgerigar, also scientifically known as *"Melopsittacus undulatus"* (from the Greek words *"melos"*=melody and *"psittacus"*=parrot) originates from Australia, where lives in large groups, in shady and humid areas [3].

Undulated budgerigars proved high adaptability, being relatively used to the temperatures from the new life areas, where they've been transported, as well as with the various accommodation facilities [4]. For this particular reason and for its specific ornamental features [7], this aviary species is raised in larger flocks, as decorative bird or for commercial purposes [1].

The main aim for this paper consisted in the lack of data in the specialty literature, especially for those elements which could be used in breeding procedures for the undulated standard budgerigar [6], in order to consolidate certain traits.

MATERIAL AND METHOD

The biological material consisted in 90 standard undulated budgerigars, equally allocated in three aviaries, noted conventionally with: L1, L2 and L3:

- **aviary L1** (Animal Sciences Faculty -Iaşi)-endorsed with climate controlled rearing room, which comprise one large size loft and six mating cages;
- **aviary L2** (Zoological Park-Bârlad)-climate controlled hall with acces toward 12 outer lofts;
- **aviary L3** (Leţcani-Iaşi)-endorsed with 3 lofts and 10 mating cages, deployed into a climate controlled environment.

An electronic scale was used to assess birds weight, while the measurements for body lengths and perimeters were done with caliper and marked tape, as following:

- *trunk length* – from the scapulo-humeral joint to the ischial tuberosity;
- *total length*–between occipital bone and tail end;
- *wings span*–between wings tips;

- *length of sternum keel*–between the cranial keel extremity and the xiphfoid appendix;
- *length of tail*–between the basis and the free extremity of the rectrices;
- *beak length*– between the basis and the free extremity of the beak;
- *thorax circumference* – by passing the tape underneath the wings at their basis;
- *cannon perimeter* – with the tape around its inferior third.

In order to establish the significance of the differences between the means, the data were processed through ANOVA single factor analysis of variance.

RESULTS AND DISCUSSIONS

1. Body weight. Quite high differences were found in females, between groups (45.79±0.85g in L1; 48.27±0.31g in L2 and 47.04±0.17g in L3), consequently significant statistic differences between L1-L2 and distinguished significant between L2-L3; despite these, the trait was homogenous in each group (V%=1,44-7,17) (tab. 1).

Table 1. Body weight (g) and the significance of differences between groups

Notice	$\overline{X} \pm s_{\overline{X}}$ (g)	V%	Min. (g)	Max. (g)
Females(n=15)				
L1	45.79±0.85	7.17	39.22	51.34
L2	48.27±0.31	2.52	45.94	50.13
L3	47.04±0.17	1.44	46.19	48.34
Differences significance between groups means	L1 vs. L2 = *; F (7.5158) > Fα (4.1959) at 1:28 DF L1 vs. L3 = n.s.; F (2.0772) < Fα (4.1959) at 1:28 DF L2 vs. L3 = **; F (11.7360) > Fα (7.6356) at 1:28 DF			
Males (n=15)				
L1	50.29±0.63	0.63	47.91	56.91
L2	50.86±0.54	0.54	47.92	55.31
L3	51.59±0.25	0.25	50.29	53.22
Differences significance between groups means	L1 vs. L2 = n.s.; F (0.4636) < Fα (4.1959) at 1:28 DF L1 vs. L3 = n.s.; F (3.6704) < Fα (4.1959) at 1:28 DF L2 vs. L3 = n.s.; F (1.4850) < Fα (4.1959) at 1:28 DF			
Both genders (n=30)				
L1	48.04±0.66	7.59	39.22	56.91
L2	49.56±0.39	4.33	45.94	55.31
L3	49.31±0.45	4.99	46.19	53.22
Differences significance between groups means	L1 vs. L2 = n.s.; F (3.8871) < Fα (4.0068) at 1:58 DF L1 vs. L3 = n.s.; F (2.5135) < Fα (4.0068) at 1:58 DF L2 vs. L3 = n.s.; F (0.1740) < Fα (4.0068) at 1:58 DF			

In males, body weight presented less heterogeneity, confirmed by the lack of statistic differences between groups. The values recorded for this trait reached: 50.29±0.63 g in group L1; 50.86±0.54 g in group L2 and 51.59±0.25 g in group L3. the trait was homogenous, the calculated variation coefficient values were less than 10% (V%=0.25-0.63).

Body weight analysis in both genders revealed higher values in group L2 (49.56±0.39 g) and lower ones in group L1 (48.04±0.66 g). No statistical differences were found between groups and good homogeneity was recorded (V%=4.33-7.59).

2. Trunk length. In females, trunk length recorded wide variations, from a minimum of 3.34 cm and a maximum of 4.92 cm, resulting thus a mean of 4.01±0.06 cm, in L1 aviary, of 4.05±0.09 cm in L2 aviary, respectively of 4.13±0.04 cm in L3 aviary. The studied trait presented high homogeneity, as well as the low values of the variation coefficient (V%=3.55-8.67) (tab. 2).

Table 2. Trunk length (cm) and the significance of differences between groups

Notice	$\overline{X} \pm s_{\overline{X}}$ (cm)	V%	Min. (cm)	Max. (cm)
Females(n=15)				
L1	4.01±0.06	5.58	3.68	4.46
L2	4.05±0.09	8.67	3.34	4.92
L3	4.13±0.04	3.55	3.87	4.33
Differences significance between groups means	L1 vs. L2 = n.s.; F (0.0961) < Fα (4.1959) at 1:28 DF L1 vs. L3 = n.s.; F (2.8159) < Fα (4.1959) at 1:28 DF L2 vs. L3 = n.s.; F (0.7087) < Fα (4.1959) at 1:28 DF			
Males (n=15)				
L1	5.06±0.06	4.29	4.72	5.46
L2	4.94±0.05	4.05	4.61	5.32
L3	4.99±0.05	4.09	4.69	5.32
Differences significance between groups means	L1 vs. L2 = n.s.; F (2.5860) < Fα (4.1959) at 1:28 DF L1 vs. L3 = n.s.; F (0.7646) < Fα (4.1959) at 1:28 DF L2 vs. L3 = n.s.; F (0.5608) < Fα (4.1959) at 1:28 DF			
Both genders (n=30)				
L1	4.54±0.10	12.68	3.68	5.46
L2	4.49±0.10	11.87	3.34	5.32
L3	4.56±0.09	10.37	3.87	5.32
Differences significance between groups means	L1 vs. L2 = n.s.; F (0.0972) < Fα (4.0068) at 1:58 DF L1 vs. L3 = n.s.; F (0.0320) < Fα (4.0068) at 1:58 DF L2 vs. L3 = n.s.; F (0.2808) < Fα (4.0068) at 1:58 DF			

In males, trunk length was higher than in females (5.06±0.06 cm, in L1 aviary; 4.94±0.05 cm, in L2 aviary and 4.99±0.05 cm, in L3 aviary). The trait was quite homogenous (V%=4.05-4.29).

Assessment of trunk length in both genders concluded that this not significantly varied between aviaries, oscillating from 4.49±0.10cm-L2 aviary and 4.56±0.09 cm-L3 aviary. The studied trait was less homogenous, knowing the variation coefficient ranged within the 10.37-12.68% limits.

3. Total length. Measurements taken from females revealed significant differences between groups, with a minimum of 17.39 ± 0.60 cm (L1) and a maximum of 19.39 ± 0.96 cm (groupL2), this led to emergence of significant differences between the groups L2, L3, distinct significant differences between L1-L2 and very significant between L1-L3. However, trait has been very consistent in each group (V% = 3.43 to 6.31) (tab. 3).

Table 3. Total length (cm) and the significance of differences between groups

Notice	$\overline{X} \pm S_{\overline{X}}$ (cm)	V%	Min. (cm)	Max. (cm)
Females(n=15)				
L1	17.39±0.60	3.43	16.5	18.3
L2	18.43±1.16	6.31	16.5	20.3
L3	19.39±0.96	4.94	17.8	21.3
Differences significance between groups means	L1 vs. L2 = **; F (9.6054) > Fα (7.6356) at 1:28 DF L1 vs. L3 = ***; F (47.1521) > Fα (13.4975) at 1:28 DF L2 vs. L3 = *; F (6.8163) > Fα (4.1959) at 1:28 DF			
Males (n=15)				
L1	21.47±0.73	3.40	20.4	22.8
L2	21.29±1.08	5.08	19.6	22.9
L3	21.77±0.90	4.15	20.5	23.1
Differences significance between groups means	L1 vs. L2 = n.s.; F (0.3068) <Fα (4.1959) at 1:28 DF L1 vs. L3 = n.s.; F (0.9559) <Fα (4.1959) at 1:28 DF L2 vs. L3 = n.s.; F (1.7397) < Fα (4.1959) at 1:28 DF			
Both genders (n=30)				
L1	19.43±0.40	11.21	16.5	22.8
L2	19.87±0.33	9.18	16.5	22.9
L3	20.58±0.28	7.37	17.8	23.1
Differences significance between groups means	L1 vs. L2 = n.s.; F (0.6871) < Fα (4.0068) at 1:58 DF L1 vs. L3 = *; F (5.5949) >Fα (4.0068) at 1:58 DF L2 vs. L3 = n.s.; F (2.7385) < Fα (4.0068) at 1:58 DF			

In males, total length showed similar values between groups, ranging between 21.29±1.08 cm (group L2) and 21.77±0.90 cm (group L3). Calculation of the coefficient of variation showed a very good homogeneity of the character (V%=3.40 to 5.08).

For both genders, the total length recorded values were of 19.43 ± 0.40 cm in group L1, of 19.87 ±0.33 cm in group L2 and of 20.58 ± 0.28 cm in group L3. Between groups L1-L3 were significant statistical differences. The trait was middle variable in L1 group (V% =11.21) and lower variable in the groups L2 and L3 (V% = 7.37 to 9.18).

4. Wingspan had higher values in males than females, with some differences between the groups. Specifically, the values set in males were: 29.16 ± 0.38 cm in group L1, 29.72 ± 0.41 cm in group L2 and 30.31 ± 0.19 cm in group L3. Even if there was a very good homogeneity of the character (V% = 2.47 to 5.37) between L1-L3 groups were statistically significant differences (tab. 4).

Table 4. Wingspan (cm) and the significance of differences between groups

Notice	$\overline{X} \pm S_{\overline{X}}$ (cm)	V%	Min. (cm)	Max. (cm)
Females(n=15)				
L1	27.29±0.42	6.04	24.85	30.21
L2	28.17±0.35	4.76	25.13	30.01
L3	28.99±0.25	3.34	27.19	31.12
Differences significance between groups means	L1 vs. L2 = n.s.; F (2.5525) < Fα (4.1959) at 1:28 DF L1 vs. L3 = **; F (11.8753) > Fα (7.6356) at 1:28 DF L2 vs. L3 = n.s.; F (3.7211) < Fα (4.1959) at 1:28 DF			
Males (n=15)				
L1	29.16±0.38	5.09	26.53	31.3
L2	29.72±0.41	5.37	26.34	32.31
L3	30.31±0.19	2.47	28.91	31.61
Differences significance between groups means	L1 vs. L2 = n.s.; F (0.9651) < Fα (4.1959) at 1:28 DF L1 vs. L3 = *; F (7.1805) > Fα (4.1959) at 1:28 DF L2 vs. L3 = n.s.; F (1.7200) < Fα (4.1959) at 1:28 DF			
Both genders (n=30)				
L1	28.23±0.33	6.42	24.85	31.30
L2	28.94±0.30	5.70	25.13	32.31
L3	29.65±0.20	3.66	27.19	31.61
Differences significance between groups means	L1 vs. L2 = n.s.; F (2.5533) < Fα (4.0068) at 1:58 DF L1 vs. L3 = ***; F (13.6770) > Fα (12.0154) at 1:58 DF L2 vs. L3 = n.s.; F (3.8892) < Fα (4.0068) at 1:58 DF			

In females, the largest wingspan was found in L3 group (28.99 ± 0.25 cm) and the lowest (27.29 ± 0.42 cm) at L1; in fact, between the two distinct groups were significant differences, the character studied was very homogeneous within the groups (V% = 3.34 to 6.04).

Aggregation of data on wingspan (both genders) showed superiority of birds in groupL3, with a value of 29.65 ± 0.20 cm, followed by birds from group L2, with 28.94 ± 0.30 cm and those of L1, with 28.23 ± 0.33 cm. Between groups L1-L3 were distinct significant differences.

5. Thorax circumference allows assessment of the degree of development of the rib cage in relation to exercise capacity during flight [9]. So for example, females of L1 had a chest perimeter of 9.11 ± 0.09 cm, those in group L2, of 9.06 ± 0.15 cm, while those in group L3, of 9.44 ± 0 , 13 cm (V% = 4.05 to 6.50) (tab. 5).

Table 5. Thorax circumference (cm) and the significance of differences between groups

Notice	$\overline{X} \pm S_{\overline{X}}$ (cm)	V%	Min. (cm)	Max. (cm)
Females(n=15)				
L1	9.11±0.09	4.05	8.7	9.8
L2	9.06±0.15	6.50	7.9	10.1
L3	9.44±0.13	5.46	8.5	10.2
Differences significance between groups means	L1 vs. L2 = n.s.; F (0.0676) < Fα (4.1959) at 1:28 DF L1 vs. L3 = n.s.; F (4.1479) < Fα (4.1959) at 1:28 DF L2 vs. L3 = n.s.; F (3.5375) < Fα (4.1959) at 1:28 DF			
Males (n=15)				
L1	10.05±0.09	3.44	9.4	10.6
L2	10.05±0.19	7.55	8.7	11.4
L3	10.81±0.19	6.81	9.9	12.3
Differences significance between groups means	L1 vs. L2 = **; F (8.7756) > Fα (7.6356) at 1:28 DF L1 vs. L3 = **; F (13.3086) > Fα (7.6356) at 1:28 DF L2 vs. L3 = **; F (7.8847) > Fα (7.6356) at 1:28 DF			
Both genders (n=30)				
L1	9.58±0.11	6.20	8.7	10.6
L2	9.55±0.15	8.74	7.9	11.4
L3	10.13±0.17	9.25	8.5	12.3
Differences significance between groups means	L1 vs. L2 = n.s.; F (0.0155) < Fα (4.0068) at 1:58 DF L1 vs. L3 = **; F (7.3775) > Fα (7.0939) at 1:58 DF L2 vs. L3 = *; F (6.2613) > Fα (4.0068) at 1:58 DF			

Chest perimeter established in Males ranged from 10.05 cm (groups L1 and L2) to10.81 ± 0.19 cm (group L3); between the group L3 and L1 and L2 groups were distinct significant differences. Character showed very low variability (V% = 3.44 to 7.55).

Chest perimeter values at both genders were of 9.58 ± 0.11 cm in group L1, of 9.55 ±0.15 cm in group L2 and of 10.13 ± 0.17 cm in group L3; between L2-L3 significant differences were found, and between L1-L3, distinctly significant. The character studied was very homogeneous (V% = 6.20 to 9.25)

6. Sternum keel length presented lower values in females than in males, with no statistical differences between groups (tab. 6).

Table 6. Sternum keel length (cm) and the significance of differences between groups

Notice	$\overline{X} \pm S_{\overline{X}}$ (cm)	V%	Min. (cm)	Max. (cm)
Females(n=15)				
L1	3.90±0.09	8.83	3.3	4.4
L2	3.68±0.09	9.08	3.1	4.2
L3	3.71±0.05	5.27	3.3	4.1
Differences significance between groups means	L1 vs. L2 = n.s.; F (3.1526) < Fα (4.1959) at 1:28 DF L1 vs. L3 = n.s.; F (3.3300) < Fα (4.1959) at 1:28 DF L2 vs. L3 = n.s.; F (0.1110) < Fα (4.1959) at 1:28 DF			
Males (n=15)				
L1	4.59±0.05	4.31	4.2	4.9
L2	4.57±0.07	5.65	4.1	5.1
L3	4.60±0.06	5.39	4.2	4.9
Differences significance between groups means	L1 vs. L2 = n.s.; F (0.1007) < Fα (4.1959) at 1:28 DF L1 vs. L3 = n.s.; F (0.0066) < Fα (4.1959) at 1:28 DF L2 vs. L3 = n.s.; F (0.1301) < Fα (4.1959) at 1:28 DF			
Both genders (n=30)				
L1	4.25±0.08	10.54	3.3	4.9
L2	4.12±0.10	13.05	3.1	5.1
L3	4.16±0.09	12.06	3.3	4.9
Differences significance between groups means	L1 vs. L2 = n.s.; F (0.9314) < Fα (4.0068) at 1:58 DF L1 vs. L3 = n.s.; F (0.5375) < Fα (4.0068) at 1:58 DF L2 vs. L3 = n.s.; F (0.0616) < Fα (4.0068) at 1:58 DF			

Thus, in females, there was a minimum of 3.68 ± 0.09 cm (group L2) and a maximum of 3.90 ± 0.09 cm (L1), while in males, the limits of oscillation were ranged from 4.57± 0.07 cm (group L2) and 4.60 ± 0.06 cm (group L3) (V% = 4.31 to 9.08).

For both genders, sternal keel length was of 4.25 ± 0.08 cm in group L1, of 4.12 ± 0.10 cm in group L2 and of 4.16 ± 0.09 cm in group L3. Although among the groups were not

identified statistical differences, the values of the coefficient of variation (V% = 10.54 to 13.05) showed a mid variability.

7. Legs length. Measurements taken from females showed a certain consistency between groups, hence the lack of statistical differences, the values recorded were between 2.89 ± 0.04cm (group L2) and 2.93 ± 0.04 cm (group L3). For this body size were also found very low levels of coefficient of variation (V% = 4.42 to 5.21) corresponding to a very good uniformity of the trait (tab. 7).

Table 7. Legs length (cm) and the significance of differences between groups

Notice	$\overline{X} \pm S_{\overline{X}}$ (cm)	V%	Min. (cm)	Max. (cm)
Females(n=15)				
L1	2.93±0.04	4.91	2.7	3.1
L2	2.89±0.04	5.21	2.7	3.2
L3	2.89±0.03	4.42	2.7	3.1
Differences significance between groups means	L1 vs. L2 = n.s.; F (0.5538) < Fα (4.1959) at 1:28 DF L1 vs. L3 = n.s.; F (0.4498) < Fα (4.1959) at 1:28 DF L2 vs. L3 = n.s.; F (0.0170) < Fα (4.1959) at 1:28 DF			
Males (n=15)				
L1	3.14±0.04	4.93	2.9	3.4
L2	3.13±0.04	4.92	2.9	3.4
L3	3.25±0.04	4.49	3.0	3.5
Differences significance between groups means	L1 vs. L2 = n.s.; F (0.0139) < Fα (4.1959) at 1:28 DF L1 vs. L3 = n.s.; F (3.7726) < Fα (4.1959) at 1:28 DF L2 vs. L3 = *; F (4.2769) > Fα (4.1959) at 1:28 DF			
Both genders (n=30)				
L1	3.03±0.03	6.02	2.7	3.4
L2	3.01±0.03	6.49	2.7	3.4
L3	3.07±0.04	7.32	2.7	3.5
Differences significance between groups means	L1 vs. L2 = n.s.; F (0.2284) < Fα (4.0068) at 1:58 DF L1 vs. L3 = n.s.; F (0.4814) < Fα (4.0068) at 1:58 DF L2 vs. L3 = n.s.; F (1.2186) < Fα (4.0068) at 1:58 DF			

In males, leg length was, on average, 3.14±0.04 cm, L1 (V%=4.93), 3.13±0.04 cm in group L2 (V%= 4.92) and 3.25±0.04 cm in group L3 (V%=4.49). The statistical comparison of average values, the results are significant differences between groups exist in L2-L3.

Aggregation of values of length of legs at budgerigars of both genders, showed uniformity of studied trait (V% = 6.02 to 7.32) and no statistically significant differences between groups. Thus, for the birds of L1 was determined an average leg length of 3.03 ± 0.03 cm, those in group L2 of 3.01 ± 0.03 cm, and the specimens in group L3, 3 , 07 ± 0.04 cm.

8. Cannon perimeter. In females, the highest value for the cannon perimeter (9.97 ± 0.06 mm) was in the farm L1, and the lowest (8.52 ± 0.31 mm) in L2 farm. Between L1-L2, respectively, between the L1-L3 were highly significant statistical differences. If in groups L1 and L3, the character was very homogeneous (V% = 2.55 to 7.25) in group L2 it had a mean variability (V% = 14.16) (tab. 8).

Table 8. Cannon perimeter (mm) and the significance of differences between groups

Notice	$\overline{X} \pm S_{\overline{X}}$ (mm)	V%	Min. (mm)	Max. (mm)
Females(n=15)				
L1	9.97±0.06	2.55	9.64	10.71
L2	8.52±0.31	14.16	6.47	10.11
L3	8.78±0.16	7.25	7.70	9.80
Differences significance between groups means	L1 vs. L2 = ***; F (20.7681) > Fα (13.4975) at 1:28 DF L1 vs. L3 = ***; F (45.1366) > Fα (13.4975) at 1:28 DF L2 vs. L3 = n.s.; F (0.5519) < Fα (4.1959) at 1:28 DF			
Males (n=15)				
L1	9.95±0.09	3.51	9.30	10.43
L2	9.68±0.16	6.34	8.39	10.40
L3	9.51±0.13	5.44	8.58	10.11
Differences significance between groups means	L1 vs. L2 = n.s.; F (2.2996) < Fα (4.1959) at 1:28 DF L1 vs. L3 = **; F (7.6490) > Fα (7.6356) at 1:28 DF L2 vs. L3 = n.s.; F (0.6700) < Fα (4.1959) at 1:28 DF			
Both genders (n=30)				
L1	9.96±0.05	3.02	9.30	10.71
L2	9.10±0.20	12.19	6.47	10.40
L3	9.15±0.12	7.42	7.70	10.11
Differences significance between groups means	L1 vs. L2 = ***; F (16.9511) > Fα (12.0154) at 1:58 DF L1 vs. L3 = ***; F (36.3961) > Fα (12.0154) at 1:58 DF L2 vs. L3 = n.s.; F (0.0376) < Fα (4.0068) at 1:58 DF			

Males of L1 had a cannon perimeter of 9.95 ± 0.09 mm, those in group L2 of 9.68 ±0.16 mm, while those in group L3, of 9.51 ± 0.13 mm, values that led to the emergence of distinct significant differences between groups L1-L3. The character was very homogeneous (V% = 3.51 to 6.34%).

Mean perimeter set for the cannon in both genders, were 9.96 ± 0.05 mm at L1 (V%

=3.02), 9.10 ± 0.20 mm in group L2 (V% = 12 , 19) and 9.15 ± 0.12 mm in group L3 (V% = 7.42). From L1, respectively, L2 and L3 groups, there were significant differences.

9. Tail length significantly differed between groups, per genders or overall per aviaries. Despite this, the phenomenon could not due to some genetic differences but to the loss of its integrity in contact with loft walls (tab. 9).

Table 9. Tail length (cm) and the significance of differences between groups

Notice	$\overline{X} \pm S_{\overline{X}}$ (cm)	V%	Min. (cm)	Max. (cm)
Females(n=15)				
L1	9.34±0.13	5.49	8.35	10.12
L2	8.90±0.19	8.52	7.96	10.14
L3	10.77±0.34	12.33	8.96	12.75
Differences significance between groups means	L1 vs. L2 = n.s.; F (1.7952) < Fα (4.1959) at 1:28 DF L1 vs. L3 = ***; F (17.8991) > Fα (13.4975) at 1:28 DF L2 vs. L3 = ***; F (22.4707) > Fα (13.4975) at 1:28 DF			
Males (n=15)				
L1	12.08±0.22	7.01	10.36	13.27
L2	11.31±0.24	8.44	10.12	13.61
L3	14.31±0.21	5.58	12.96	15.44
Differences significance between groups means	L1 vs. L2 = n.s.; F (3.7675) < Fα (4.1959) at 1:28 DF L1 vs. L3 = ***; F (62.2690) > Fα (13.4975) at 1:28 DF L2 vs. L3 = ***; F (87.9713) >Fα (13.4975) at 1:28 DF			
Both genders (n=30)				
L1	10.63±0.28	14.29	8.35	13.27
L2	10.15±0.27	14.39	7.96	13.61
L3	12.60±0.38	16.45	8.96	15.44
Differences significance between groups means	L1 vs. L2 = n.s.; F (1.5432) < Fα (4.1959) at 1:58 DF L1 vs. L3 = ***; F (17.5396) > Fα (12.0154) at 1:58 DF L2 vs. L3 = ***; F (27.8412) > Fα (12.0154) at 1:58 DF			

Thus, in L3 females, there has been assessed a mean length of tail of 10.77±0.34 cm, compared to 9.34±0.13 cm in L1 group and just 8.90±0.19 cm in group L2; highly significant statistical differences were identified between group L3 and groups L1, L2. Trait variability was poor (V%=5.49-8.52) in groups L1 and L2 and middle (V%=12.33) in group L3.

The measurements run on males indicated tail lengths of 12.08±0.22 cm in group L1, of 11.31±0.25 cm in group L2 and 14.31±0.21 cm in group L3. These gaps between groups led to the occurrence of certain highly significant differences between group L3 and group L1, L2. Variation coefficient values (V%=5.58-8.44) indicated very good homogeneity of the analyzed trait.

Tail length calculated values for both genders revealed better levels in L3 group (12.60±0.38 cm), followed by L1 group (10.63±0.28 cm) and by L2 group (10.15±0.27 cm); very significant differences were also identified between group L3 and groups L1, L2. Variation coefficient indicated average variability (V%=14.29-16.45).

10. Beak length is relevant for this aviary species, representing a breed trait, as well as a secondary gender trait [5] (tab. 10).

Table 10. Beak length (cm) and the significance of differences between groups

Notice	$\overline{X} \pm S_{\overline{X}}$ (cm)	V%	Min. (cm)	Max. (cm)
Females(n=15)				
L1	1.10±0.02	7.68	1.0	1.2
L2	1.09±0.02	6.84	1.0	1.2
L3	1.11±0.02	8.90	1.0	1.3
Differences significance between groups means	L1 vs. L2 = n.s.; F(0.2105) < Fα (4.1959) at 1:28 DF L1 vs. L3 = n.s.; F (0.1573) < Fα (4.1959) at 1:28 DF L2 vs. L3 = n.s.; F (0.6956) < Fα (4.1959) at 1:28 DF			
Males (n=15)				
L1	1.13±0.02	7.20	1.0	1.3
L2	1.18±0.02	7.97	1.0	1.3
L3	1.20±0.02	7.04	1.1	1.3
Differences significance between groups means	L1 vs. L2 = n.s.; F (2.1042) < Fα (4.1959) at 1:28 DF L1 vs. L3 = * ; F (4.8275) > Fα (4.1959) at 1:28 DF L2 vs. L3 = n.s.; F (0.3750) < Fα (4.1959) at 1:28 DF			
Both genders (n=30)				
L1	1.12±0.01	7.47	1.0	1.3
L2	1.13±0.02	8.46	1.0	1.3
L3	1.16±0.02	8.70	1.0	1.3
Differences significance between groups means	L1 vs. L2 = n.s.; F (0.5160) < Fα (4.0068) at 1:58 DF L1 vs. L3 = n.s.; F (2.8102) < Fα (4.0068) at 1:58 DF L2 vs. L3 = n.s.; F (0.8453) < Fα (4.0068) at 1:58 DF			

In females, beak length presented the following values: 1.10±0.02 cm in L1 group; 1.09±0.02 cm in L2 group and 1.11±0.02 cm in L3 group. No statistical significant differences occurred between groups. The values of variation coefficient (V=6.84-8.90) indicated a very good uniformity.

In males, beak length presented homogenous (V%=7.04-7.98), with higher

levels than in females: 1.13±0.02 cm in L1 group; 1.18±0.02 cm in L2 group and 1.20±0.02 cm in L3 group. Significant statistical differences were identified between groups L1-L3.

Beak length assessments for both genders indicated close values between groups, with averages comprised between 1.12±0.01 cm, in L1 group and 1.16±0.02 cm, in L3 group; no statistical significant differences were identified between groups. The trait could be considered as homogenous, as the low values of the variation coefficient (V%=7.47-8.70) proved so.

CONCLUSIONS

Certain interesting conclusions issued from the researches, as following.

1. Body weight, calculated for the entire studied population reached 48.97 g, with lower levels in females (45.79-48.27 g) and higher in males (50.29-51.59 g).

2. Concerning the body sizes in the investigated population, the whole average body length was of 19.96 cm (18.40 cm in females and 21.51 cm in males), while trunk length reached 4.53 cm (4.06 cm in females and 4,99 cm la males).

3. Wingspan was measured at 28.15 cm in females and 29.73 cm in males, therefore a population average of 28.94 cm.

4. Thorax circumference was situated at an average value per population of 9.75 cm, being lower in females (9.20 cm) than in males (10.30 cm). The same situation was found for the length of sternum keel, which presented higher values in males (4.59 cm) than in females (3.76 cm), with and average, for the entire population, of 4.18 cm.

5. Besides the novelty fact, we consider that the data we acquired, related to the dimensional depiction of a standard undulated budgerigars *(Melopsittacus undulatus)* population, could be used in the breeding activities of this species, even for the fixation of certain traits, even for obtaining new varieties.

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