Qualitative characteristics of *Thryonomys swinderianus swinderianus* and *Thryonomys swinderianus gregorianus*

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Abstract

Cane rat, a micro livestock currently being domesticated has the potential to increase animal protein sources. This study examined the qualitative characteristics of *Thryonomys swinderianus swinderianus* (Tss) and *Thryonomys swinderianus gregorianus* (Tsg). Three hundred and thirty five cane rats were sampled. Seven qualitative characters were coded. These included: Shape of Head (SH), Eye Placement (EP), Ear Shape (ES), Body Pelage (BP), Tail Shape (TS), Tail Colour (TC), Breed (B). The qualitative characters were scored on the individual animals. This measures were analysed using frequency distribution and chi-square analysis. In the Tss population, 89.23% of the animals had broad heads, 10.77% had narrow heads. The broad heads animals had broad tip ear (89.23%) have brown and yellow – belly white body colour (89.23%). Their tail is broad base and thin out to tip (87.69%) although a few (1.54%) had broad base and even out to tip. All the broad heads (89.23%) brown and yellow-belly white animals (100.00%) had black and hairy tail. In the Tsg population, 87.06% of the animals had narrow heads, (12.94%) had broad heads. The narrow heads animal (86.67%) had ear with broad tip and have black and yellow-belly white body colour (86.67%). The tail is broad base and thin out is tip (80.39%). All the narrow heads (87.06%), black and yellow-belly white (99.61%) animals had black and hairy tail.

Keywords: Qualitative characteristics, *Thryonomys swinderianus swinderianus* and *Thryonomys swinderianus gregorianus*

Introduction

The cane rat (*Thryonomys swinderianus*) commonly called grass cutter is a tropical African rodent (Hanks, 1979). Cane rat is the second largest species of rodent in Nigeria after the crested porcupine (Happold, 1987). The two breeds commonly found are: *Thryonomys swinderianus swinderianus* and *Thryonomys swinderianus gregorianus*. The *Thryonomys swinderianus* lives in swampy region (Hanks, 1979). Mensah (2000 and 2001) agree that *Thryonomys swinderianus* is the grand aulacode or big cane rat and the *Thryonomys gregorianus* is the *petit* aulacode or small cane rat. Many species are fissorial, nesting and living

much of the time in burrows, others at ground levels and they are found in all these habitation (Wood, 1994). Dorsal pelage is deep brown to rufous brown flecked with yellow and black. Body is thick, head broad with short flattened muzzle, small eyes and ears (Happold, 1987). The cane rat (*Thryonomys swinderianus*) belongs to the Kingdom, Animalia, Phylum Chordata and Subphylum Vertebrate. It belongs to class Mammalian, Order, Rodentia and Suborder Hystricormorphes, Sub Family Thryonomidae or Petromuroidae. It belongs to the family Thryonomidae and Genus *Thryonomys* (Happold, 1987; Adoun, 1993 and Wood 1994). Other species are *Swinderianus swinderianus*

(Temmincks, 1927), *Swinderianus gregorianus* (Thomas, 1894), *Swinderianus raptorum* (Thomas, 1922), *Swinderianus variegatus* (Ansell, 1960) and *Swinderianus Longani* (Romer et Nesbitt, 1930). There are different classes of cane rat. Mensah (2000 and 2001) ascribed names to the various groups of cane rat (aulacode) as; Cane rat - Aulacode, Adult female - Aulacodine, Adult male - Aulacodin, Female at puberty - Aulacodelle, Male at puberty - Aulacodean, Male weaned or Sub adult - Aulacodinet, Female weaned or sub adult - Aulacodinetette, Castrated male cane rat - Aulacodin. Cane rat, a micro-livestock currently being domesticated, has the potential to increase animal protein sources. The major problems of cane rat production is domestication which involves capture, management, breeding and survival. In this study the qualitative characteristics of two breeds of cane rat was observed. This will aid in the improvement programme of this animals through selection.

Material and Methods

Three hundred and twenty animals were sampled at Faniyi farms, Igbesa comprising two hundred and fifty five *Swinderianus gregorianus* and sixty-five *Swinderianus swinderianus* and fifteen animals were measured at the University Mission Research farm, of University of Ibadan comprising ten *Swinderianus gregorianus* and five *Swinderianus swinderianus*. Altogether three hundred and thirty-five cane rats were sampled. Seven qualitative characters were coded. These included; Shape of head (SH), Eye placement (EP), Ear shape (ES), Body pelage (BP), Tail shape (TS), Tail colour (TC)). The qualitative characters were scored on the individual animals. These measures were

analysed using frequency distribution and chi-Square analysis of statistical analytical system (1990) procedure/package.

Results and Discussion

In *S. swinderianus* population, some (89.23%) of the animals had broad heads, while (10.77%) had narrow heads (Table 1). In the broad head animals, all (89.23%) had broad tip ear while in the narrow head animals a few (3.08%) had narrow tip ear and some (7.69%) had broad tip ear (Table 1). All the animals (89.23%) with broad heads had brown and yellow-belly white body colour and all the animals (10.77%) with narrow heads had brown and yellow, belly white body colour (Table 1). In the broad head animals, some (87.69%) had broad base and thin out to tip tail but a few (1.54%) had broad base and even out to tip tail while in the narrow head animals, all (10.77%) had broad base and thin out to tip tail (Table 1). All the broad head animals (89.23%) had black and hairy tail and all the narrow head animals had black and hairy tail (Table 1). In the *S. swinderianus* population, all (100.00%) of the animals had brown and yellow-belly white body colour (Table 2). In the brown and yellow-belly white animals, all (100.00%) had protruded eyes (Table 2). In the brown and yellow-belly white animals, some (89.23%) had broad head and a few (10.77%) had narrow heads (Table 2). In the brown and yellow belly white animals, many (70.77%) are of age 17-24 weeks, followed by (10.77%) 33-41 weeks, (19.23%) 25-32 weeks, (7.69%) 9-16 weeks and (1.54%) 1-8 weeks (Table 3). In the brown and yellow belly white animals, some (98.46%) had broad base and thin out to tip tail while a few (1.54%) had broad base and even out to tip tail (Table 2). All (100.00%) the brown and yellow-belly white animals had black and hairy tail (Table 2). In the brown and yellow-belly

Table 1: Percentages Head shape, ear shape, eye placement, body colour, tail shape and tail colour of *S. swinderianus* and *S. gregorianus*

Head shape		S.swinderianus			S.gregorianus		
Ear shape							
		N T	B T	Total	N T	B T	Total
BH	n 0	58	58	58	0	33	33
		0.00	89.23	89.23	0.00	12.94	12.94
NH	n 2	5	7	7	1	221	222
		3.08	7.69	10.77	0.39	86.67	87.06
Total	n 2	63	65	65	1	254	255
		3.08	96.92	100.00	0.39	99.61	100.00
Eye placement							
		Protrude	Sunken	Total	Protrude	Sunken	Total
BH	n 58	0	58	58	33	0	33
		89.23	0.00	89.23	12.94	0.00	12.94
NH	n 7	0	7	7	222	0	222
		10.77	0.00	10.77	87.06	0.00	87.06
Total	n 65	0	65	65	255	0	255
		100.00	0.00	100.00	100.00	0.00	100.00
Body colour							
		BrY	Total	BrY	BIY	Total	
BH	n 58	58	58	0	33	33	
		89.23	89.23	0.00	12.94	12.94	
NH	n 7	7	7	1	221	222	
		10.77	10.77	0.39	86.67	87.06	
Total	n 65	65	65	1	254	255	
		100.00	100.00	0.39	99.61	100.00	
Tail shape							
		BBT	BBE	Total	BBT	BBE	Total
BH	n 57	1	58	58	33	0	33
		87.69	1.54	89.23	12.94	0.00	12.94
NH	n 7	0	7	7	205	17	222
		10.77	0.00	10.77	80.39	6.67	87.06
Total	n 64	1	65	65	238	17	255
		98.46	1.54	100.00	93.33	6.67	100.00
Tail colour							
		BIH	Total	BIH	Total		
BH	n 58	58	58	33	33		
		89.23	89.23	12.94	12.94		
NH	n 7	7	7	222	222		
		10.77	10.77	87.06	87.06		
Total	n 65	65	65	255	255		
		100.00	100.00	100.00	100.00		

* S.s - *S. swinderianus*

BBT - broad base thin out to tip

S.g - *S. gregorianus*

BEE - broad base even out to tip

BH - broad head

BLH - black and hairy

NH - narrow head

NT - narrow tip

BT - broad tip

BrY - brown and yellow belly white

BIY - black and yellow belly white

white animals, a few (3.08%) had ears with narrow tip and most (96.92%) had ear with broad tip (Table 2). In the *S. gregorianus* population, many (87.06%) of the animals had narrow heads, a few (12.94%) had broad heads (Table 1). In the broad head animals all (12.94%) had ear with broad tip while in the narrow head animals a few (0.39%) had ear with narrow tip and many (86.67%) had ear with broad tip (Table 1). All the animals (12.94%) with broad heads had black and yellow-belly white body colour while a few (0.39%) of the animals with narrow heads had brown and yellow-belly white body colour and many (86.67%) of the animals with narrow head had black and yellow-belly white body colour (Table 1). In the broad head animals, all (12.94%) had broad base and thin out to tip tail while in the narrow head animals, many (80.39%) had broad base and thin out to tip tail (Table 1). All (12.94%) the broad head animals have black and hairy tail and all (87.06%) the narrow head animals had black and hairy tail (Table 1). In the *S. gregorianus* population, many (99.61%) of the animals had black and yellow-belly white body colour and a few (0.39%) had brown and yellow-belly white body colour (Table 2). In the black and yellow-belly white animals, all (99.61%) had protruded eyes and in the brown and yellow-belly white animals, all (0.39%) had protruded eyes (Table 2). In the brown and yellow-belly white animals, all (0.39%) had narrow heads while in the black and yellow-belly white animals a few (12.94%) had broad heads and many (86.67%) had narrow heads (Table 2). In the black and yellow-belly white animals, many (30.59%) are of age 25-32 weeks followed by (29.02%) 9-16 weeks, (22.35%) 17-24 weeks, (10.20%) 33-41 weeks and (7.84%) 1-8 weeks while in the brown and yellow-belly white animals, all (0.39%) are of age 33-41 weeks

(Table 3). In the black and yellow-belly white animals, many (92.94%) had broad base and thin out to tip tail, some (6.67%) had broad base and even out to tip tail while in the brown and yellow-belly white animals, all (0.39%) had broad base and thin out to tip tail (Table 2). All (99.61%) the black and yellow-belly white animals had black and hairy tail and all (0.39%) the brown and yellow-belly white animal had black and hairy tail (Table 2). Many (99.22%) of the black and yellow-belly white animals had ear with broad tip and a few had ear with narrow tip while all (0.39%) the brown and yellow-belly white animal had ear with broad tip (Table 2). In this study, head and ear tips of *S. swinderianus* are broad, eyes are protruded and they have brown and yellow-belly white body colour. The *S. swinderianus* had more of a broad base and thin out to tip tail; the tail is black and hairy. *S. swinderianus*, all ages had animals with brown and yellow-belly white body colour but the percentage body colouration was more in one age than the other. This might be related to the sample size and the age of the animal. The head of *S. gregorianus* is narrow, ear tips broad, eyes protruded and it had black and yellow belly white body colour. The *S. gregorianus* had broad base and thin out to tip tail, the tail is black and hairy. In this genotype, all the ages had black and yellow-belly white body colour, but the percentage body colouration is more in one age (25-32 weeks) than the other, this is related to the sample sizes and age of the animal. Although, some of these animals had brown and yellow-belly white body colour, which could be that the parents were crossed with the *S. swinderianus* genotype. In this study, the head, ear tip and belly of the animal has shown more light into indentifying the breeds. It was also established in this study that there is a cross bred of the two breeds.

Table 2: Percentages Body colour, head shape, eye placement, ear shape, tail shape and tail colour of *S. swinderianus* and *S. gregorianus*

Body colour		S.swinderianus			S.gregorianus		
		Head shape					
		BH	NH	Total	BH	NH	Total
BrY	n	58	7	65	0	1	1
		89.23	10.77	100.00	0.00	0.39	0.39
BIY	n	-	-	-	33	221	254
		-	-	-	12.94	86.67	99.61
		Eye placement					
		Protrude		Total	Protrude		Total
BrY	n	65		65	1		1
		100.00		100.00	0.39		0.39
BIY	n	-		-	254		254
		-		-	99.61		99.61
		Ear shape					
		NT	BT	Total	NT	BT	Total
BrY	n	2	63	65	0	1	1
		3.08	96.92	100.00	0.00	0.39	0.39
BIY	n	-	-	-	1	253	254
		-	-	-	0.39	99.22	99.61
		Tail shape					
		BBT	BBE	Total	BBT	BBE	Total
BrY	n	64	1	65	1	0	1
		98.46	1.54	100.00	0.39	0.00	0.39
BIY	n	-	-	-	237	17	254
		-	-	-	92.94	6.67	99.61
		Tail colour					
		BIH		Total	BIH		Total
BrY	n	65		65	1		1
		100.00		100.00	0.39		0.39
BIY	n	-		-	254		254
		-		-	99.61		99.61

Table 3: Percentages Body colour and Age in *S. swinderianus* and *S. gregorianus*

Body Colour			Age (weeks)				
			1-8	9-16	17-24	25-32	33-41
BrY	S.s	n	1	5	46	6	7
			1.54	7.69	70.77	9.23	10.77
	S.g	n	0	0	0	0	1
BIY	S.s	n	0.00	0.00	0.00	0.00	0.39
			-	-	-	-	-
	S.g	n	20	74	57	78	25
			7.84	29.02	22.35	30.59	9.80

Conclusion

From this study therefore, the *S. Swinderianus* head and ear tips are broad, eyes are protruded and they have brown and yellow-belly white body colour. The tail is broad base and even out to tip, it is black and hairy. The head of *S. Gregorianus* is narrow, ear tips broad, eyes protruded and it had black and yellow-belly white body colour. It had broad base and thin out to tip tail, the tail is black and hairy. That some of the Tss had narrow heads and Tsg had broad heads and other variations in body colour is due to the effect of the management practices where breeds were not first sorted out before mating the animals. Tss and Tsg are breeds of cane rat. Out of five breeds of cane rat only this two breeds have been found in Ogun State a representation of SouthWest Nigeria. The head, ear tip and belly of the animals has characterize this animal further unlike breeds published earlier.

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