

# A STUDY ON THE FOOD PREFERENCE BEHAVIOUR OF *MUS MUSCULUS* (ALBINO)

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## ABSTRACT

Laboratory trials were conducted to evaluate the food preference behaviour of *Mus musculus* (albino) i.e. Swiss albino mice by experimenting four cereals (Wheat, jowar, gram and maize) in the form of whole grains, broken grains and flours in both single choice and multiple choice feeding tests. Observations reveal highest ranking of jowar flour baits among different foods offered, although wheat flour having non-significant difference ( $P>0.05$ ) in consumption with jowar flour may also be regarded as equally preferred.

**Keywords :** Swiss albino mice; Food preference; *Triticum aestivum*; *Sorghum vulgare*; *Cicer arietinum*; *Zea mays*.

## INTRODUCTION

Rodents are placed at a high position in the list of pests causing damage to crops, stored grains, house-hold commodities and causing various diseases to men and animals. Rodents are second only to insects among the pests imparting heavy losses to food grains. In India the rodent population is estimated to be six times than that of human beings (Anon, 1975).

Rodents are highly versatile regarding their feeding habits (Prakash, 1962; I, andry, 1970 Reichman et al., 1979) It has been observed that rodents sample the different foods available to them and then exhibit preference to a food over others. It is, therefore, mandatory to select the highly preferred food as the bait base for controlling them. Various studies have been carried out to find out the preferences of different rodent species by Chopra. et. al., (1980); Katoch (1981); Sharma et al., (1983); Saxena et al., (1991) and Prakash et al, (1980).

The present investigation was carried out upon Swiss albino mice to evaluate its preferences in feeding habits towards whole grains, broken grains and flours in single choice and multiple choice feeding tests.

## MATERIALS AND METHODS

Single and multiple choice food preference tests were carried out upon the healthy, individually, caged mice of both the sexes with four commonly available cereals viz. wheat (*Triticum aestivum*),

jowar (*Sorghum vulgare*), gram (*Cicer arietinum*), and maize (*Zea mays*) in three textures viz- whole grains, broken grains and flour form.

During the single choice test a single bait was provided to each mice for seven days while in the multiple choice test four baits were provided to them for seven days. The baits were replenished everyday and water was provided *ad libitum*. The daily consumption was recorded and converted from absolute to the g/kg body weight for comparison purpose. The percent intake and palatability index were computed,

## RESULTS AND DISCUSSION

Single Choice Tests (Table 1)

**TABLE 1**

**Single choice food preference test against Swiss albino mice**

S.No.	Cereals offered	Average daily Intake (g/kg body weight)		
		Whole grains	Broken grains	Flours
1.	<b>Wheat</b> ( <i>Triticum aestivum</i> )	72.77 ±9.29	97.89 ±5.59	169.85 <sup>+</sup> ±5.55
2.	<b>Jowar</b> ( <i>Sorghum vulgare</i> )	92.32 ±3.74	84.26 ±5.76	201.34 ±0.91
3.	<b>Gram</b> ( <i>Cicer arietinum</i> )	71.39 ±9.29	80.12 ±5.25	152.14* ±8.02
4.	<b>Maize</b> ( <i>Zea Mays</i> )	87.91 ±2.56	90.63 ±4.05	199.23 ±7.68

\* <0.001 (Highly significant)

+P < 0.1 (Significant)

Results reveal that in single choice test the average daily consumption of flour baits was higher than that of broken grains and whole grains. Jowar ranked first in consumption among whole grains and flours. While in broken grains wheat was the most preferred one. It was also observed that in the maize grains the mice preferred to eat its soft germ portion leaving behind most of the hard parts. The order of preference was recorded as follows:

Whole Grains

Jowar > Maize > Wheat > Gram

Broken Grains

Wheat > Maize > Jowar > Gram

Flours

Jowar &gt; Maize &gt; Wheat &gt; Gram

**Multiple Choice Tests (Table 2)****TABLE 2**

Multiple choice food preference tests against Swiss albino mice

S.No.	Cereals offered	Texture of Food				Flout Balts	
		Whole grains	Broken grains	Average daily Intake (g/kg b.wt.)	Percent intake (g/kg b.wt.)	Average Daily intake (g/kg b.wt.)	Percent Intake
1.	Wheat ( <i>Triticum aestlvum</i> )	68.63 ±4.47	77.89	93.21 ±6.71	61.37	83.16 ±7.26	31.25
2.	Jowar ( <i>Sorgham vulgare</i> )	16.28* ±5.84	18.48	22.47* ±6.61	14.79	102.95 ±9.61	38.68
3.	Gram ( <i>Cicer arietinum</i> )	1.25* ±1.03	1.42	19.43* ±3.46	12.79	26.28+ ±8.62	9.87
4.	Maize ( <i>Zea Mays</i> )	1.95* ±0.54	2.21	16.78* ±5.93	11.05	53.75 • ±12.26	20.19

\* P &lt; 0.001 (Highly significant) + P &lt; 0.01 (Significant) P &lt; 0.05 (Almost significant)

In multiple choice tests, more stable preferences were shown. Among, whole and broken grains the wheat was the most preferred one with highly significant (P < 0.001) difference between the consumption of wheat and other grains. but in case of flour baits, jowar occupied the first place and wheat declined to second. But the difference between the consumption of jowar and wheat was non-significant (P > 0.05). The order of preference was as follows:

Whole Grains

Wheat &gt; Jowar &gt; Maize &gt; Gram

## Broken Grains

Wheat > Jowar > Gram > Maize

## Flours

Jowar > Wheat > Maize > Gram

It is evident from above results that the texture of food plays a major role in the consumption of food. The average daily intake of flour bait was maximum followed by broken grains and whole grains. The preference of flours or small sized grains was reported in other rodent species viz. *Gerbillus gleadowi* (Prakash et al., 1975), *Rattus meltada* (Jain et al, 1974) *Rattus rattus*, (Khan, 1974) and *Bandicota bengalensis* (Kamal and Khan, 1977). However, contradictory to it, *Tatera indica* (Jain, 1980), *Meriones hurrianae* (Prakash et al., 1978) and *Rattus culchicus cutchicus* (Jain et al., 1975) show preference of whole grains to broken grains or flour.

Further while comparing the present evaluations among themselves, it is suggested that jowar flour is the most preferred food of Swiss albino mice, but due to non-significant difference between the consumption of jowar and wheat flour, both of these can be used as poison carrier.

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