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# Gastric Histomorphological Changes in Albino Rats Administered with Herbal Boobs Enlargement and Lifting Tea

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## Abstract

The study investigated the histomorphological changes in the stomach of albino rats administered with herbal boobs enlargement and lifting tea, to assess the impact of the herbal tea on behaviour, body weight, and stomach weight. This case-control experimental study was conducted at the Faculty of Medical Laboratory Science, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria. The research period lasted 30 days, with 7, 21, and 30-day periods across the groups. A total of 16 rats were used, divided into four groups (A, B, C, D), with each group containing four rats. Group "A" was not administered with boobs enlargement and lifting tea (control group); group "B" was administered with 0.5ml/kg body weight of boobs enlargement and lifting tea daily for 7 days; group "C" was administered with 0.5ml/kg body weight of boobs enlargement and lifting tea for 21 days; group "D" was administered with 0.5ml/kg body weight of boobs enlargement and lifting tea for 30 days. Stomach tissue was excised for histopathology. Data for body weight and organ weight were analysed using the Statistical Package for the Social Sciences (SPSS). Behavioural observations include drowsiness, increased sleep duration, and reduced locomotion. The body weight results showed statistically significant differences in the initial and final weights of the control group A ($p=0.019$) and the experimental groups B ($p= <0.001$), C ($p=0.001$), and D ($p=0.004$). The stomach weights showed no statistically significant difference in the experimental groups when compared to the control group, with the p-values of groups B, C, and D being 0.128, 0.116 and 0.211, respectively. Histological analysis of the stomach tissues from the test groups exhibited consistent normal histology with the control group. This study concluded that the experimental rats showed drowsiness, increased period of sleep, and reduced locomotor movement. Experimental and control groups showed an increase in body weight. The mean relative stomach weights revealed no statistically significant difference in the experimental groups when compared to the control groups. Only group B showed a statistically significant difference in the mean relative liver weight. The stomach tissues revealed normal tissue histology across the control and experimental groups. Boobs enlargement tea has no negative effect on the liver and stomach of Albino rats at this concentration and duration.

**How to Cite this Article**

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**Keywords:** Boobs Enlargement and Lifting Tea, Body weight, Stomach. Histopathological changes



## 1. Introduction

Boobs Enlargement and Lifting tea is a completely natural herbal supplement which is sugar-free, preservative-free, and caffeine-free. It contains a blend of Astragalus (Gao *et al.*,2020; Zhao, 2014), Rose Petals (Nayak *et al.*, 2019), Motherwort, Angelica, Dandelion root, Fenugreek, Blackberry leaf, Lemon balm, Linden leaf and flower, Peppermint leaf, and Marshmallow leaf (El-Beshbishy *et al.*, 2012). These compounds have a combination of antioxidant and anti-inflammatory properties and contain minerals and vitamins that help boost the immune system (Liu, 2015). Breast enlargement supplements, such as Boobs Enlargement and Lifting tea, have gained popularity in Nigeria as a natural alternative for women seeking to increase breast size or improve breast firmness. Their popularity stems from promotion on television, on the Internet, and in magazines aimed at young women (Fugh-Berman, 2003). The ingredients they contain are believed to have phytoestrogenic properties, which mimic oestrogen—a hormone responsible for breast development (Pazaiti *et al.*, 2012). Boobs Enlargement and Lifting tea is a natural health drink made from Chinese medicinal materials, created to maximise naturally occurring breast-boosting ingredients. They are also thought to support the skin's elasticity, giving a more youthful appearance to the breasts (Obinna, 2019).

Herbal medicines include herbs, herbal materials, herbal preparations, and finished herbal products that contain as active ingredients parts of plants, or other plant materials, or combinations (WHO, 2019). These preparations include a variety of

products, such as supplements, topical creams and capsules, often marketed as natural alternatives to synthetic products. Herbal body enhancement preparations have a long history rooted in traditional medicine across many cultures in Nigeria (Iyiola & Adegoke, 2023). These remedies, often aimed at improving physical appearance or strength, range from enhancing skin health to augmenting body size and muscle tone. Despite its popularity, there is insufficient scientific evidence supporting its safety and the possible risks to vital organs. While previous studies suggest health benefits, limited research leaves considerable gaps in our understanding of its effects on the liver and stomach, both of which are essential for detoxification and nutrient absorption (Chalfoun *et al*., 2004).

The consumption of body enhancement supplements in Nigeria is notable, particularly among women seeking natural, non-surgical methods for enhancing their appearance. These products, often marketed as herbal remedies, are widely available on popular online retail platforms such as Jumia and specialised stores like Ginax stores. The global prevalence of the use of herbal medicine in 2018 was 88% (WHO, 2019), with 80% of the Nigerian population depending on herbal medicine (Sulaiman *et al.*, 2017). Phytoestrogens in breast enhancement preparations, when taken excessively, can lead to hormonal imbalances, potentially increasing the risk of conditions such as cancer (Waalkes *et al.*, 2014). The ingredients can cause allergic reactions in some individuals, such as skin rashes, gastrointestinal distress, or respiratory issues (McKay & Miller, 2004). Furthermore, these herbs can interact with prescription medications, affecting their efficacy. Gastrointestinal complications such as nausea, diarrhoea, or bloating could occur, particularly when consuming the supplement in large quantities (Philpott *et al.*, 2013). Overconsumption could also lead to serious health issues such as liver damage (Schuppan *et al.*, 1999).

The study seeks to investigate the histopathological changes in the stomach of albino rats administered with Boobs enlargement and Lifting tea. The objective of the study is to assess the impact of Boobs Enlargement and Lifting tea on behaviour, body weight, and stomach weight, and to determine the histopathological differences between the control group and the experimental groups of albino rats administered with Boobs Enlargement and Lifting tea. These findings have the potential to be useful tools for early diagnosis, monitoring, and assessment of organ dysfunction among users of herbal products.

The liver is a vital organ in the body, playing a central role in numerous physiological processes. The liver regulates carbohydrate, fat, and protein metabolism. It converts excess glucose into glycogen for storage and can convert glycogen back into glucose when needed (Hall, 2016). The liver processes and detoxifies various metabolites, drugs, and toxins, transforming them into less harmful substances for excretion (Roth, 2017). It produces bile, essential for the digestion and absorption of fats in the small intestine (McGarry & Buse, 2002). The liver also synthesises important proteins, including blood-clotting factors and albumin, which help maintain blood volume and pressure (Friedman, 2015). The stomach is a vital organ in the digestive system, playing a central role in the breakdown of food, digestion, and absorption of nutrients. Its unique structure and functions facilitate the complex process of digestion. While the stomach primarily focuses on digestion, it does absorb certain substances, such as alcohol and some medications (Fernandez, 2022). The stomach acts as a temporary storage site for food, allowing for gradual release into the small intestine, which aids in efficient digestion and nutrient absorption (Barker *et al.*, 2018). The stomach produces hormones like gastrin, which stimulate gastric acid secretion and promote digestion. These hormonal signals play a role in regulating digestive processes (Liu, 2023).

## 2. Materials and Methods

### 2.1 Study Area

The study was carried out in the College of Health Sciences, Nnamdi Azikiwe University, Nnewi Campus. This university is situated in Okofia, Otolo-Nnewi town in Nnewi North Local Government Area, Anambra State, in the southeastern part of Nigeria.

### 2.2 Duration of Study

The research period lasted for 30 days, with a period of 7, 21, and 30-day administration for different experimental groups, and intervals to check their weight using an analytical weighing balance.

**2.3 Experimental Design:** Sixteen healthy adult albino rats weighing between 70 g and 100g were purchased from the Animal House, Department of Physiology, College of Health Sciences, Nnamdi Azikiwe University, and housed in the Animal House, Department of Medical Laboratory Sciences. The animals were kept in standard cages at a room temperature of 27±2°C and maintained with normal laboratory chow (Grower feed) and water *ad libitum*. The animals were kept on 12-hour light and dark cycles, and allowed to acclimatise for 14 days before the commencement of administration of Boobs Enlargement and Lifting tea (Edo, 2022).

The animal grouping consisted of four groups: A, B, C and D (n=4). Group A consisted of four albino rats, and were not administered with Boobs Enlargement and Lifting tea. Group A serves as control and received feed and water only (control group). Albino rats in group B, group C, and group D consisted of four adult female rats in each group, and were administered with 0.5ml/kg body weight of Boobs Enlargement and Lifting tea for a period of 7, 21, and 30 days, respectively.

The administration of the Boobs Enlargement and Lifting tea was under strict supervision. Males and females were kept in separate cages. Each animal in the different groups was carefully examined on a daily basis before and after experimental

administration for possible clinical signs of Boobs Enlargement and Lifting tea-induced effect on the behavioural patterns and physical features of the albino rats. The rats were also weighed on every day of sacrifice for each group, to confirm for changes in relative weight.

### 2.4 Sample Collection

At the end of the experiment, for each group (that is, day 7, day 21 and day 30), animals from each group were randomly selected, weighed and sacrificed by cervical dislocation after 12 hours of fasting. The stomach was excised, weighed to check organ weight and then fixed in 10% neutral buffered formalin for subsequent histopathological processing and examination (Adefola *et al*., 2024; Avwioro, 2011; Choji *et al*., 2015).

### 2.5 Ethical consideration and approval

The ethical approval for this research was obtained from the Ethics Committee, Faculty of Medical Laboratory Science, College of Health Sciences, Nnamdi Azikiwe University.

### 2.6 Statistical Analysis

Statistical analysis was carried out using One-Way Analysis of Variance (ANOVA) and Paired Samples t-test through the program of Statistical Package for Social Science (SPSS) computer software version 27.0. The results were expressed as Mean ± SD. The differences among means at $p \leq 0.05$ are considered significant (Karamurugan and Govindarajan, 2022).

## 3. Results

### 3.1 Behavioural Changes Observed in the Albino Rats during the Administration Period

Behavioural changes observed in the albino rats treated with Boobs Enlargement and Lifting Tea as compared to the control groups include: drowsiness, increased period of sleep, and reduced locomotor movement.

### 3.2 Effect of Boobs Enlargement and Lifting Tea on Body Weight of Albino Rats

There was a statistically significant increase in the mean final body weight of group A(control) when their mean final body weight was compared to their mean initial body weight (Table 1) ($p \leq 0.05$). There was a statistically significant increase in the mean final body weight of the experimental groups B, C, and D, when their mean final body weight was compared to their mean initial body weight (Table 1) ($p \leq 005$).

**Table 1:** Comparisons of the Initial and Final Body Weights across Experimental groups (Mean ± SD).

| Group | Initial body weight (g) | Final body weight (g) | t-value | p-value |
|---|---|---|---|---|
| A(Control) | 83.00±1.41 | 167.50±4.95 | -33.800 | 0.019* |
| B | 70.50±4.66 | 109.00±4.97 | -77.000 | <0.001* |
| C | 72.25±2.22 | 121.00±6.33 | -12.775 | 0.001* |
| D | 74.33±5.51 | 148.00±2.65 | -15.786 | 0.004* |

*Paired samples t-test, * Significant mean difference at P≤0.05.*

### 3.3 Effect of Boobs Enlargement and Lifting Tea on Relative Stomach Weights among The Control and Experimental Groups

The results showed that there was no statistically significant difference in the mean relative stomach weights of albino rats in the experimental groups B, C, and D when compared to the control group A. The level of statistical significance is considered at $p \leq 0.05$ (Table 2).

**Table 2:** Comparisons of Relative Stomach Weights across groups (Mean ± SD)

| Group | Relative Stomach Weight (g) |
|---|---|
| A(Control) | 1.56±0.23 |
| B | 1.14±0.13 |
| C | 1.12±0.24 |
| D | 1.17±0.18 |
| F-value | 2.545 |
| P-value | 0.121 |
| A vs B | 0.138 |
| A vs C | 0.116 |
| A vs D | 0.211 |

*One-way ANOVA, Post-Hoc Tukey test. * Significant mean difference at P≤0.05.*

### 3.4 Histomorphological Report

The gastric mucosal lining is composed of intact simple columnar epithelium. Beneath the gastric pits lie well-organised gastric glands, varying by region, containing parietal cells (eosinophilic, acid-secreting) and chief cells (basophilic, pepsinogen-secreting). The lamina propria consists of loose connective tissue with minimal inflammatory cells and supports the glandular structures. A distinct muscularis mucosa separates the mucosa from the submucosa, which contains connective tissue, blood

vessels, and nerves without glandular elements. The muscularis externa is composed of three smooth muscle layers (oblique, circular, and longitudinal), and the outermost layer is a serosa lined by mesothelium (Plate 1).

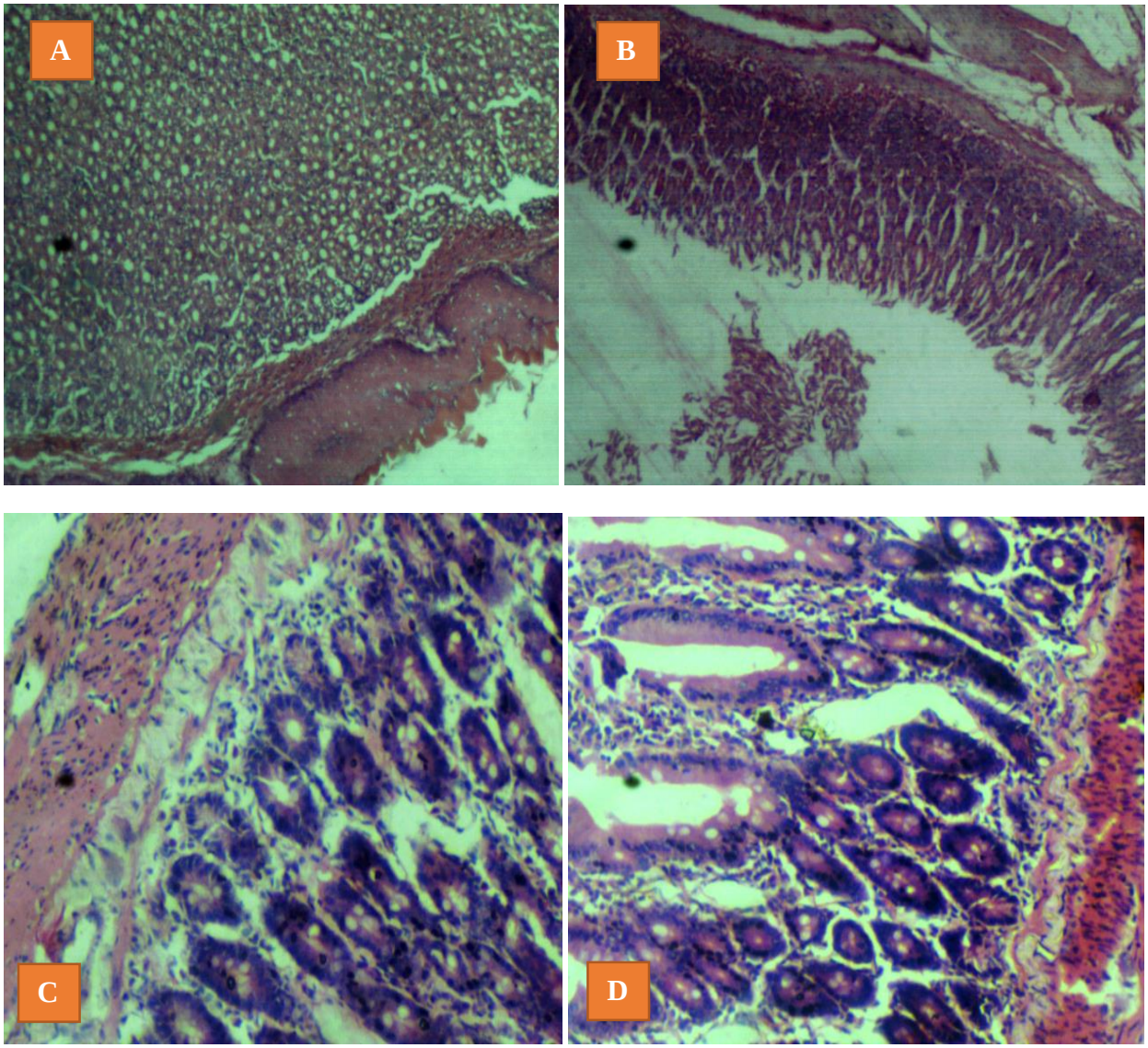


**Plate 1:** Photomicrographs of sections of the stomach show: (A to B) normal histology of the muscularis, submucosa and mucosa. The epithelial lining within the mucosa is intact and shows no obvious alterations (H&E x400).

## 4. Discussion

The study focused on the impact of the administration of Boobs Enlargement and Lifting Tea on various aspects of albino rat behaviour, body weight changes and stomach histology. The observations shed light on the effects of the administration of the herbal Boobs Enlargement and Lifting Tea on rat behaviour, with comparisons drawn between exposed and control groups. The study reported drowsiness, increased period of sleep, and reduced locomotor movement upon administration, corroborating earlier reports that sleep improvement is associated with certain herbs (Bartholomew, 2020; Hosseini *et al.*, 2023). This also aligns with previous studies that also reported similar responses (Murthy *et al.*, 2022). Reduced locomotor movement and drowsiness suggest neurobehavioral perturbations as a result of polyherbal mixtures (Oyadeyi *et al.*, 2021).

The reported increased body weight changes agree with an earlier study carried out by Piao *et al.* (2013), wherein the weight of rats was significantly ($p < .05$) due largely to an increase in feeding on the herbal decoction. This suggests a positive gradient in overall growth patterns during the experiment. The findings underscore the complex interplay of factors influencing weight changes, including feeding habits and the nature of the feed (grower feed). Also, previous research links an increase in body weight to phytochemicals (Tucci, 2010). The relative stomach weights were examined, and the results indicated no statistically significant differences between the control group and the experimental groups. However, Amin and Mohamed (2019) observed no significant increase in the relative organ weights of the rats during their research on Fenugreek seeds, a very important ingredient in Boobs Enlargement and Lifting Tea, making a deduction that diets supplemented with fenugreek had an ameliorative and preventive effect against liver and intestinal damage.

The histological findings consistently demonstrated normal histology of the stomach tissue. This aligns with Navarro *et al.'s (*2016) findings, where histopathological examination of various organs, including the liver and stomach, revealed no significant changes attributable to the consumption of herbal supplements in controlled doses. Joshua *et al.* (2008) also observed similar findings after administration of Wistar rats with a polyherbal formulation.

## 5. Conclusion

The experimental animals showed drowsiness, increased sleep period, and reduced locomotor movement. Final body weight changes in the albino rats revealed a statistically significant increase in both the experimental and the control groups. There was no statistically significant difference in the mean relative stomach weight of the experimental groups when compared to the control group.

### Competing Interests

Authors have declared that no competing interests exist.

### Authors' Contributions

Samuel Ifedioranma Ogenyi designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Daniel Chimuanya Ugwuanyi managed the analyses of the study and the literature searches. All authors read and approved the final manuscript.

### Ethical Approval (Wherever Applicable)

Ethical approval was obtained from the Faculty of Medical Laboratory Science Animal Ethics Committee. There were unannounced visits by members of the Animal Ethics Committee in the course of the experiment.

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