

## OPEN ACCESS

**RESEARCH ARTICLE****Nutritive and Sensory Qualities of Indigenous Spices on Snail for Tourist Acceptability.**Adebayo Ibidapo Nathaniel<sup>1\*</sup>**Abstract**

This study investigated into the Nutritive and sensory qualities of Indigenous Spices on Snail for tourist Acceptability. The objective of the study includes the identification of indigenous spices in the study area, the determination of the proportion of nutrients from the spices and the determination of the effect of spices on snail. A total number of 174 structured questionnaire was used for Organoleptic test from tourists with personal interview from key informants, five (5) indigenous spices was tested on land snail. Findings revealed that 39.2% preferred snail spiced with Ariwo while 1.5% of the panelist dislike it very much, equally, 30.% of the respondent prefer spiced snail with scent leaf, while 2.5% dislike it very much, so also 45.4% of the tourist prefer snail with African while 0.3% dislike it very much thus it is recommended that. More awareness should be created on indigenous spices and the use of indigenous spices on snail should be encouraged by all state holders

**Key words:** Nutritive, Indigenous Spices, Snail, organoleptic and Acceptability.

**1 | INTRODUCTION**

Spices are flavouring substances added to food to enhance savory (1) (Lapedes 2009). Spices are aromatic vegetable material used for seasoning of indigenous or exotic origin which is aromatic or has hot poignant taste, and can further be seen as a dried plant product used primarily to season foods (Adema 2008) they are obtained from plant that normally flourish in semi tropical and tropical climate areas where heat influences the strength and pungency of spices (2) (Ajayi 2006)

Spices may be derived from any part of plant. E.g. leaf, flower, bud, fruit, bark, rhizome, root or seed (Linden 2011) strange combinations can have amazing and agreeable results for example Nchanwu (ocunum gratissium) and Dawa-dawa (locust beans) in cooking banga soup. The imaginative and judi-

cious use of spices and herbs is one of the most important aspects of successful cooking (3) ( Fry 2009).

Archeologist discovered evidence that as early as 50,000BC humans used the leaves of plants and seed of plants for flavouring meats and around 2000 BC for wine making. Alexander the great campaigns in central Asian around 330BC, are often credited for introducing Asian, Persian, Indian and Greek cultures and ideas; thus facilitating the dissemination and adoption of spices among many culture. The spices trade is known to have flourished during the second century A.D. along the trade routes known as the silk road which connected the east and the west. Early records indicate that herbs and spices were used as medicine in ancient Egypt and Assyrian and as food preservatives in ancient Rome and Greece (4) (Parry 2007).

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Supplementary information The online version of this article (<https://doi.org/10.52845/CER/2018/121>) contains supplementary material, which is available to authorized users. Adebayo Ibidapo Nathaniel 2018; Published by Instituto Nacional de Viticultura, Inc. This Open Access article is distributed under the terms of the Creative Commons License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

## An Overview of Snail.

Snail is a common name that is applied most often to land snails, terrestrial pulmonate gastropod molluscs. However the common name snail is also applied to the members of the molluscan class gastropoda that have a coiled shell that is large enough for the animal to retract completely into, when the word snail is used in this most general sense, it includes not just land snail but also thousands of species of sea snail and fresh water snails (5) Biggin (2006)

Snail can be found in a very wide range of environments, including ditches, deserts and snail may be more familiar to laymen; marine snails constitute the majority of snail species, and have greater diversity and a greater biomass, (6) (Estoy et al 2002)

### 1.1 | Snail Health Benefits

This animal has a wide range of benefits, snails contain a lot of protein and also contain essential amino acids.

Snails are equally noted for the following health facts

[noitemsep,nolistsep,topsep=5pt]Snail contains omega-3 fatty acids 21.8mg, total omega-3 fatty 17.0mg Assist in the development of the brain and memory of children It prevents heart disease Lowering high cholesterol levels. Healthy eyes Healthy fetus. Pregnant women who consume omega-3 can make babies born healthy and intelligent, it also improves the quality of breast milk. Omega 3 is essential for improving mental and physical health of the baby. It increases the child's development. Snail contains Vitamins A, Vitamin E, Vitamin B, B3, B6 and B12 snail contains vitamins that dominate vitamins such as Vitamins A, E, Niacin, and Folate Snail contains choline (water soluble vitamins). Snails are high in iron (about 3.5mg or 19% of DV) Snails contain high levels of magnesium Snails are high in selenium. Selenium are important minerals and nutrients to fight disease such as cancer and heart disease. (Ziderman 1986)

### 1.2 | Economic Importance of Snail

[noitemsep,nolistsep,topsep=5pt]One of the four foods of France, where it is known as escargot. The snail slime is used in South America, Mexico and Spain as a powerful adhesive. In France; the same product is sold as a beverage. Snails are currently being used for the mass production of giant ice creams under the Sceneries Steno company

### 1.3 | Negative Effect of Snail

[noitemsep,nolistsep,topsep=5pt]Low calorie and zero fibre

[noitemsep,nolistsep,topsep=5pt]High cholesterol. Snail contains high cholesterol (Maywell, 2004) To identify the indigenous spices in the study area. To determine the proportion of nutrients derivable from the selected spices 3 To determine the effect of the spices on snail acceptability.

## 2 | MATERIALS AND METHODS

### The Study Area

The research work was carried out in Ikogosi warm spring and resorts-Ikogosi warm spring and resorts is located in Ikogosi Ekiti in Ekiti West Local Government area of Ekiti State Nigeria. In the heart of Ikogosi, a small, quiet town with rich local customs in the western part of Ekiti State (Ekiti Tourism corridor) lies a warm spring which has now catapulted Ikogosi-Ekiti to national and international lime light (Ekiti Tourism. Com. 2012).

### 2.1 | Population of the Study

A total number of one hundred and seventy four (174) tourists participated in this study. Primary data were collected from the tourists through the use of structured questionnaire; personal interview was conducted to collect information from key informants from tourists and members of staff in the study location.

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## 2.2 | Research Materials

The following Research materials were used:

[noitemsep,nolistsep,topsep=5pt]Indigenous spices(ginger, garlic, Aridan, Ariwo, Scart leaf ) Land giant snail Laboratory equipment Cooking ranges Chopping board Gas cylinder Grinding stone Questionnaire Kitchen knife Oven trays and racks Kitchen bowl Water Joint plate Joint fork etc.

## 2.3 | Organoleptic Test

Sensory evaluation was conducted among the tourist, 7 point hedonic scale was used to measure the

acceptability of the meat prepared with spices and other attributes such as colour, taste, texture/tenderness and flavour land snail(Archachatina Marginata) was the meat. Ginger (Zingiber officinale), Garlic (Allium sativum), Aridan (Tetrapleura Tetraptera ), Ariwo (Monodoro Myristica) and scent leaf (Ocimum Basiliawm) were the spices for Tourist /Taste panelist, However there is another sample serving as control.

## 3 | RESULTS AND DISCUSIONS

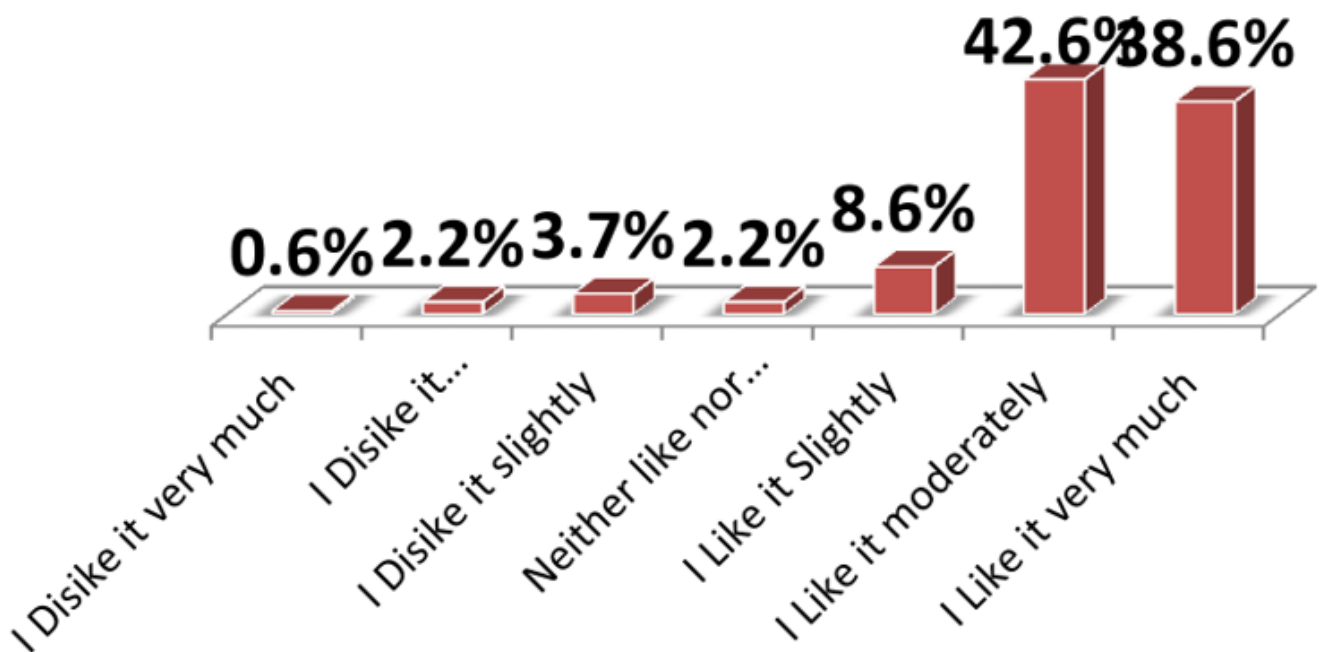


Fig. 1: Acceptability of African Giant Land Snail (Archachatina marginata) meat spiced with ginger

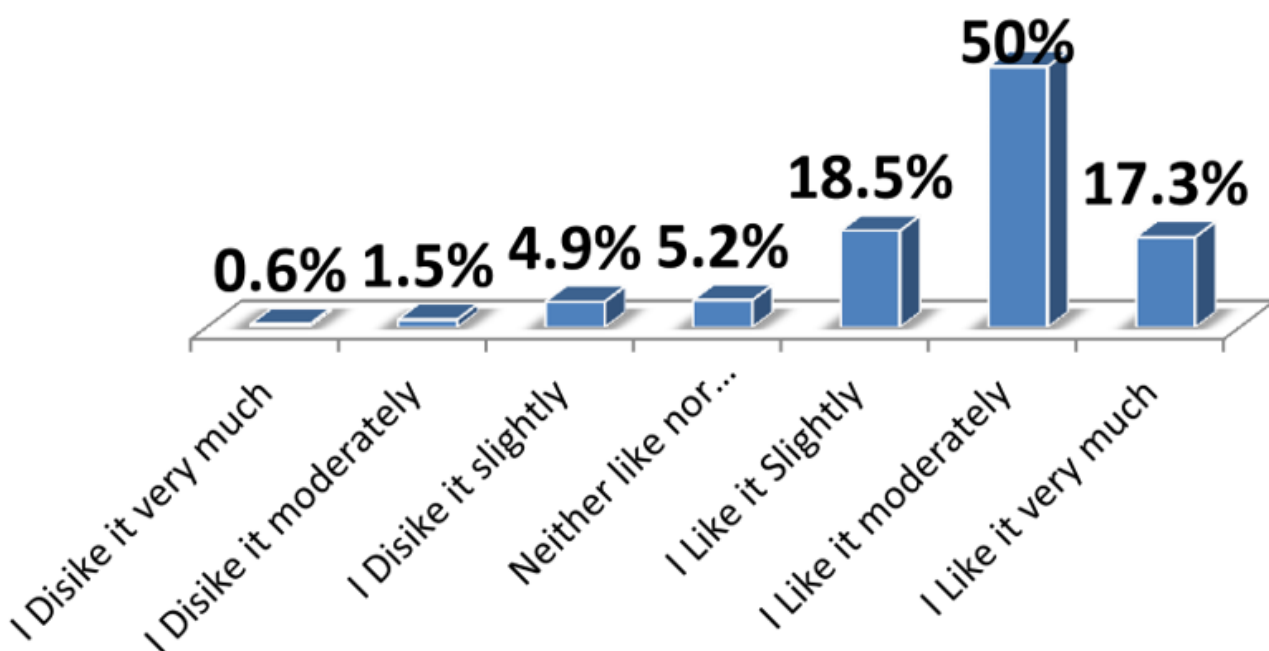


Fig. 2: Acceptability of African Giant Land Snail (*Archachatina marginata*) meat spiced withgarlic

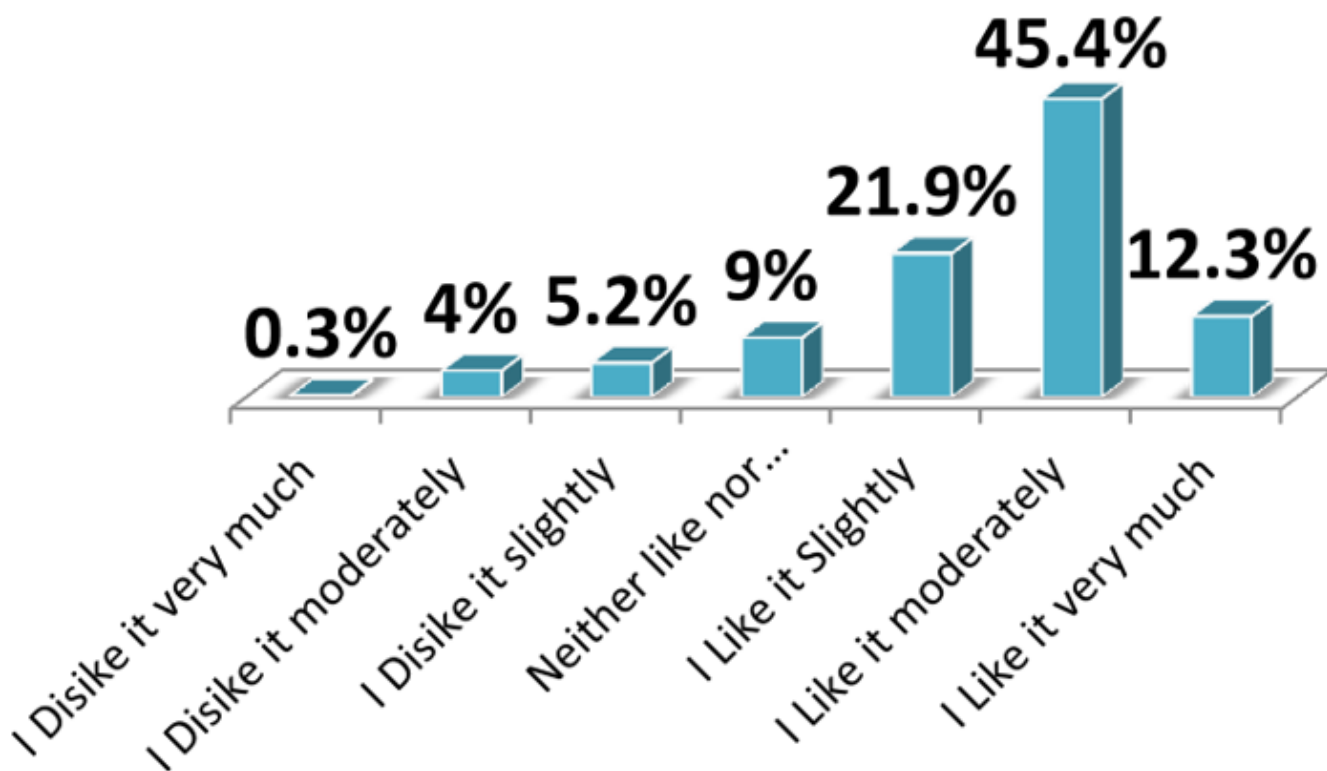
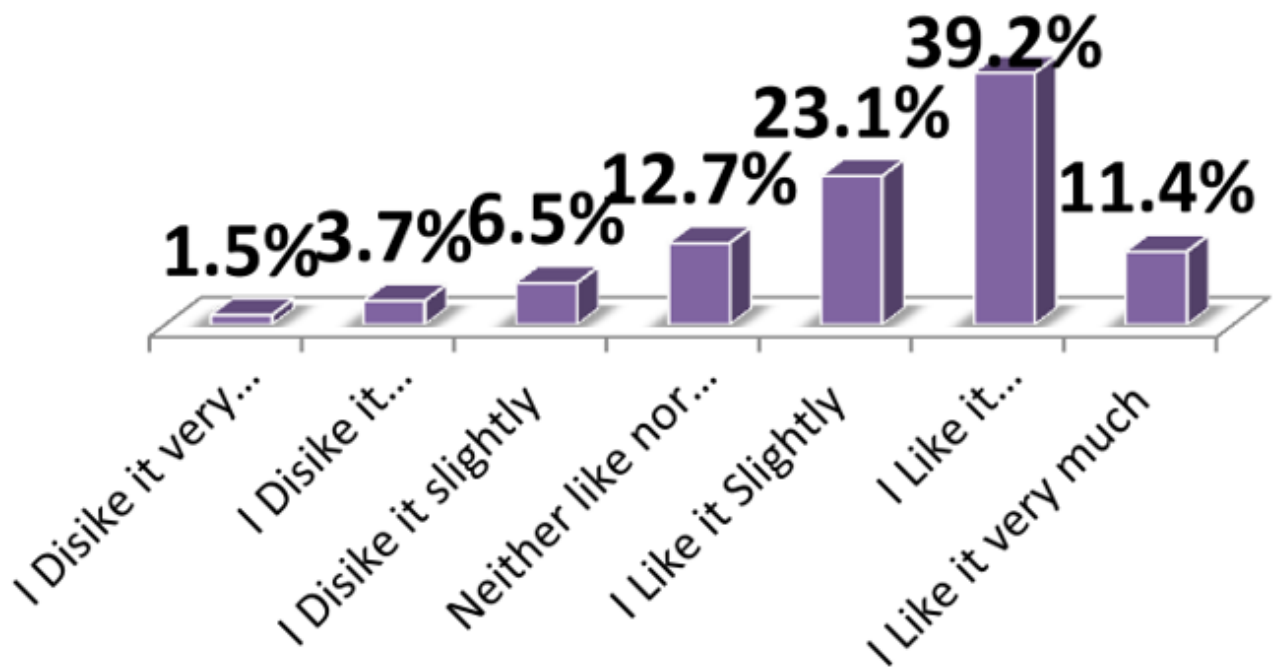
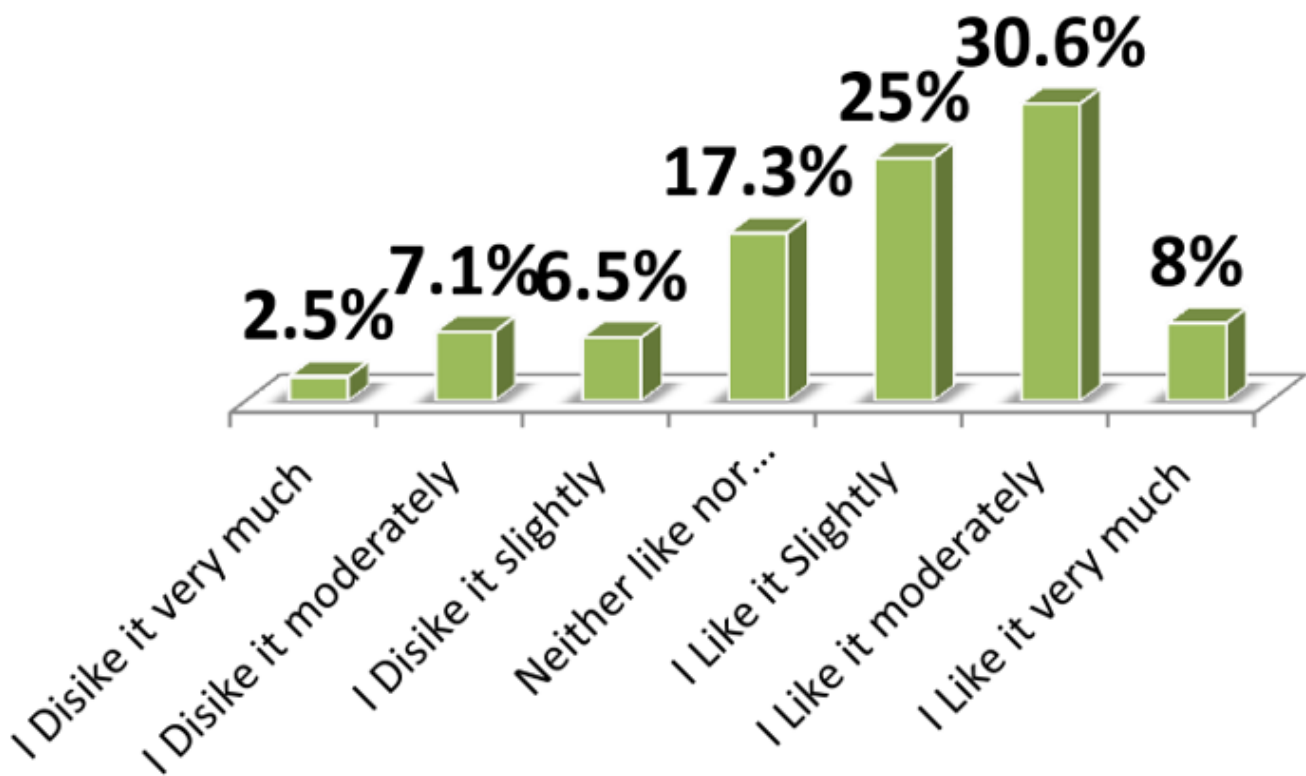


Fig. 3: Acceptability of African Giant Land Snail (*Archachatina marginata*) meat spiced witharidan

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**Fig. 4:** Acceptability of African Giant Land Snail (*Archachatina marginata*) meat spiced with ariwo



**Fig. 5:** Acceptability of African Giant Land Snail (*Archachatina marginata*) meat spiced with scent leaf

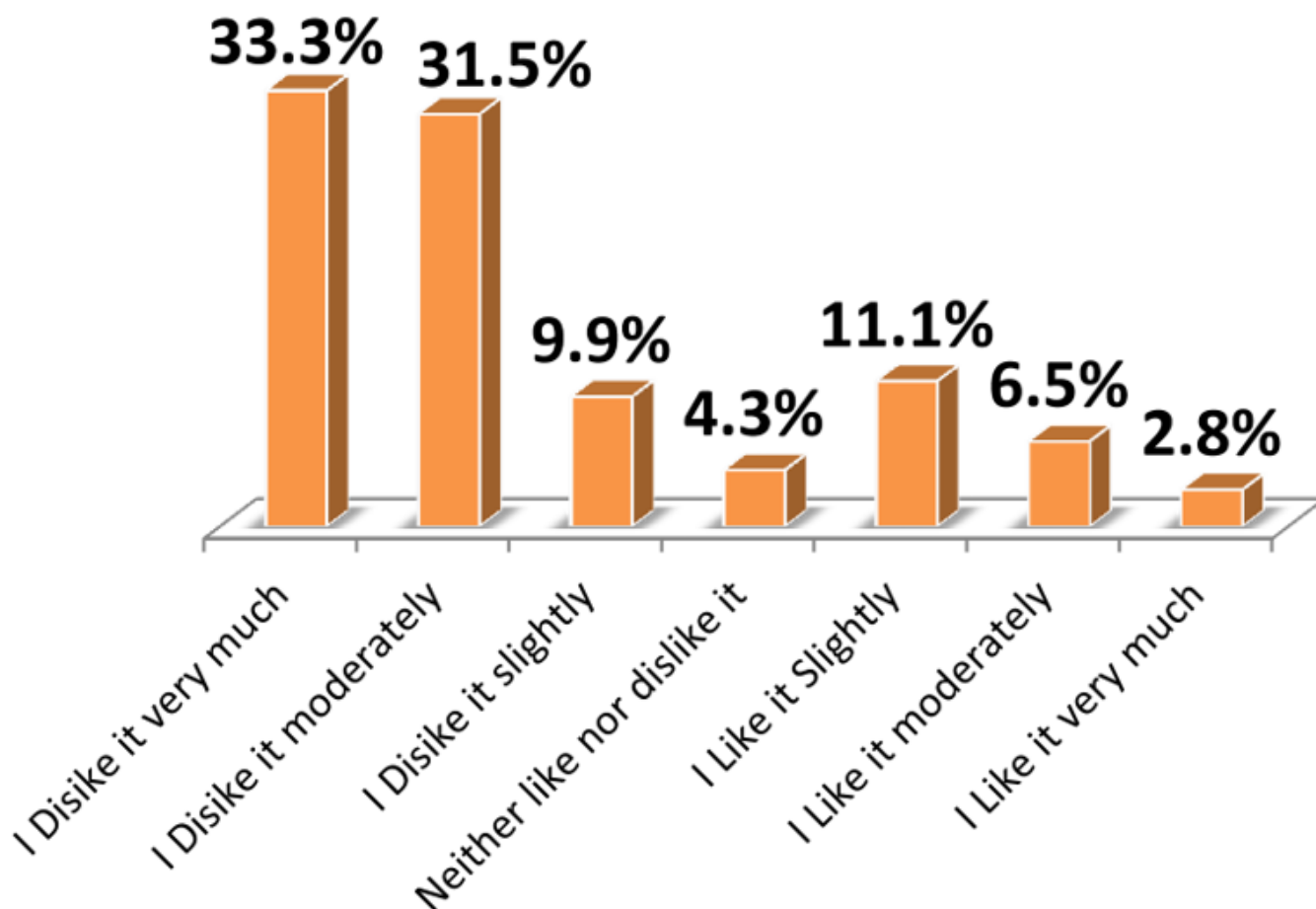


Fig. 6: Acceptability of African Giant Land Snail (*Archachatina marginata*) meat withoutspices

Five indigenous spices were selected for this study. These spices are Ginger (*Zingier officinal*) Garlic (*Alliums sativa*), Arian (*Tetra pleura tetra pear*), Ariwo (*Mondoro Myristica*) and scent leaf (*Occimum Gratissimum*). However, one of the meat samples, which is used as a control sample tasted by tourists; was not spiced. Analysis of acceptability of snail meat spiced, with Ginger revealed that 0.6% of the tourist disliked it very much, 2.2% disliked it Moderately, 3.7% dislike it slightly, 2.2% neither liked nor dislike it

8.6% like it slightly, 42.6% liked it Moderately and 38.6% like it very much. Analysis of acceptately of sliced with garlic revealed that 0.6% dislike it very much, 1.5% dislike it moderately, 4.9% dislike it slightly, 3.2% neither liked nor dislike it, 18.5% liked it slightly, 50% liked it moderately and 17.3% like it very much. Analysis of acceptability of snail meat spiced with Aridan revealed that 0.3% disliked it very much, 4% disliked it moderately. 5.2%

dislike it slightly. 9% neither liked nor disliked it 21.9% like it slightly; 45.4% liked it moderately and 12.3% like it very much.

Furthermore, analysis of acceptability of snail meat spiced with Ariwo revealed that 1.5% disliked. It very much, 3.7% disliked it moderately, 6.5% dislike it slightly 12.7% neither liked nor disliked it, 23.1% liked it slightly 39.2% liked it moderately and 11.4% like it very much. Analysis of acceptability of snail meat spiced with scent leaf revealed that 2.5% disliked it very much. 7.1% disliked it moderately, 6.5% dislike it slightly, 17.3% neither liked nor disliked it, 25% like it slightly, 30.6% liked it moderately and 8% like it very much.

Finally, analysis of acceptability of snail meat without spices revealed that 33.3% disliked it very much, 31.5% disliked it moderately, 9.9% dislike it slightly, 4.3% neither liked nor dislike it. 11.1% disliked it slightly, 6.5% liked it moderately and 2.8% like it very much.



# Nutritive and Sensory Qualities of Indigenous Spices on Snail for Tourist Acceptability.

Figures 1, 2, 3, 4, 5 and 6

## 4 | CONCLUSIONS

This study was aimed to research into some indigenous spices, determining their nutritive and sensory qualities. On snail for tourist acceptability in Ilogosi warm spring Resort Nigeria. This study examined the proportion of nutrients derivable from five local spices which were Ginger (*Zingier officinal*), Garlic (*Alliums sativa*) Arian (*Tetrapterva tetraptera*) Aiwa (*Mindoro Nyristical*) and scent leaf (*occimum gratissimum*). The study revealed that the above five spices were applied on snail and this shows that tourist acceptability of all the spices on snail were relatively high and can hence attract potential tourists.

## 5 | RECOMMENDATIONS

On the basis of the research findings, the following recommendations were made;

[noitemsep,nolistsep,topsep=5pt]The use of indigenous spices should be encouraged in all Hospitality sectors. The sales of indigenous spices can be promoted through its cultivation and hence preventing its extinction. Snails spiced with indigenous spices can be used in promoting our culture 4 More awareness should be created about the importance of indigenous spices.

5 Promotion of local spices can serve as source of income to government.

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**How to cite this article:** Nathaniel A.I. Nutritive and Sensory Qualities of Indigenous Spices on Snail for Tourist Acceptability.. *Current Educational Research*. 2018;32–38. <https://doi.org/10.52845/CER/2018/121>