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EPIDEMIOLOGY AND STATISTICAL REVIEW OF SCHISTOSOMIASIS IN NIGERIA

Introduction

Schistosomiasis is an acute and chronic parasitic disease caused by blood flukes (trematode worms) of the genus *Schistosoma* [2]. It is endemic in the poorest regions of sub-Saharan African countries. In Nigeria, 20 million people need to be treated annually, thus, it is the country with the highest burden in the world [1]. Despite the numerous cases every year, there is very little awareness about this disease in Nigeria. The disease is caused by five major species of schistosome. *Schistosoma mansoni*, *S. intercalatum*, *S. japonicum*, and *S. mekongi* cause intestinal schistosomiasis while *S. haematobium* causes urogenital morbidities. The predominant species in sub-Saharan African countries is *S. haematobium* [3]. There are only two predominant Schistosoma species in Nigeria which cause human schistosomiasis, S. mansoni, and S. haematobium.

The World Health Organization (WHO) set a target of schistosomiasis morbidity reduction of <5% prevalence in children aged 5–14 years by 2020 for endemic countries [2]. Despite a decade of efforts to mitigate the disease transmission, Nigeria is far from achieving the WHO's target.

Goal

The aim of this report is to highlight the epidemiological status of schistosomiasis in Nigeria. It is also to highlight the challenges, progress, treatment, method of diagnosing and preventive measures of this disease.

Material and method of research

The information was acquired using different books, websites and health organizations. Informations and records held on the online publishing of National institutes of health, Science direct, PubMed, World Health Organization (WHO), Google forms was used for the online survey.

The result of the research and their discussion

A survey was carried out to create awareness on schistosomiasis among different age grades and occupation.

The survey included age groups between the range of 9–51 years old. Nigeria students, foreign medical students, lawyers, engineers, doctors, physiologists, accountants took part in the survey.

In the last two decades, Nigeria has intensified campaigns against schistosomiasis. The efforts have generated schistosomiasis morbidity reductions in a few endemic areas [2]. It is difficult to achieve long term schistosomiasis control implementation programs because there is very little awareness about this disease in African countries. Water sanitation through prevention of defecation or urination in water bodies, provision of potable water, education, and snail control should be prioritized. More importantly, more studies is needed on the biology of potential snail hosts of schistosomes and the identification of molecular_markers that can aid transmission in order to aid with their eradication.

The survey carried out among 53 people to create awareness about schistosomiasis shows that 30% of people were fully informed about the disease, 42% knew little about the disease and 20% had no prior knowledge of the disease. In the survey, 29 people (52.78%) discovered the disease from school, 2 people (3.8%) have had personal experiences with the disease, 16 surveyors (30.2%) found out about the disease from social media (Instagram, Facebook, Twitter), friends, newspapers ("Vanguard", "The punch") and 6 persons (11.4%) discovered the disease from the survey carried out.

Current challenges. of schistosomiasis in Nigeria are, despite schistosomiasis being the most studied NTD in Nigeria, a report of 21.5% level of awareness about schistosomiasis specific control activities is very low. Poor government funding of schistosomiasis control programs was attributed to the low awareness of control programs [2]. The implication is that this could lead to wastage of scarce resources deployed to the control of the disease. Inadequate evidence-based public knowledge may also pose a negative impact on policy formulation and implementation.

Prevention: Snail control and eradication being that snail are the intermediate hosts and carriers of the disease. In disease endemic area, swimming or direct contact with water should be prohibited. Increased level of health education to create awareness. Treatment of patients which are carriers of this parasite. Prevention of water bodies by contamination from human feaces.

The numbers of cases vary from year to year in different states and regions. The southwestern part of Nigeria has the highest cases of the disease. There is a lagoon located in the area. States along River Benue and River Niger also have high incidence of schistosomiasis. The major occupation in these states are fishing and farming. The climate in this region is also conducive for the parasites in the snails. The indigenes from these states have higher cases because they drink from this water and there is not enough awareness to know the risk. Children play and swim in the water. States with higher level of awareness have lower cases of the disease. It was also observed, that there are more cases of schistosomiasis in dry season than rainy season. This is because the dry season is mostly for fishing and the rainy season is mostly for agriculture and there is less contact with the water.

Conclusion

Significant progress has been made in Nigeria since the discovery of Schistosomiasis. Amidst the progress made, there is a lot more to be done for the complete eradication of this disease. Intense prophylaxis measures should be put in place and strictly adhered to. The practice of implementation of Mass Drug Administration only in school children should be reviewed considering the grave consequences that non-treatment can pose to other vulnerable populations. Government and private institutions should also strive for more research on this disease for better understanding and faster eradication.

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BIOCHEMICAL DEVELOPMENT OF AROMA AND FLAVOR OF RICE

Introduction

Rice is a staple food for more than half of the world's population, and its aroma and flavor are key determinants of consumer preference and market value. Understanding the biochemical processes underlying the development of aroma and flavor in rice is essential for enhancing its quality and meeting the diverse culinary preferences of consumers.

Goal

The goal of this research is to investigate the biochemical pathways involved in the development of aroma and flavor in rice. Through comprehensive analysis of key compounds and enzymes, the aim is to elucidate the mechanisms underlying aroma and flavor generation during rice maturation. By understanding these processes, we seek to enhance rice breeding and processing techniques to produce varieties with superior sensory attributes, ultimately contributing to the improvement of rice quality and consumer satisfaction.

Material and methods of research

An online survey was conducted and based on the results from various countries including Sri Lanka (76.3%), Belarus (9.7%), Maldives (7.5%); Malaysia, United Kingdom, Qatar, United Arab Emirates and India (collectively 6.5%). Results were obtained from citizens from an age range of 13 years to 73 years. Many other well-known sources like WHO Foundation, ScienceDirect and NIC govt articles were also utilized.

The results of the research and their discussion

Instrumental analyses have found over 200 volatile compounds present in rice. However, little is known about the relationships between the numerous volatile compounds and aroma/flavor. A number of oxidation products have been tagged as likely causing stale flavor. However, the amounts of oxidation products, that need to be present for rice to have stale or rancid flavor have not been established. Only one compound, **2-acetyl-1-pyrroline (2-AP; popcorn aroma)** has been confirmed to contribute a characteristic aroma. Furthermore, 2-AP is the only volatile compound in which the relationship between its concentration in rice and sensory intensity has been established [1].

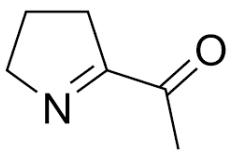

Figure 1 – The structure of 2-acetyl-1-pyrroline [4]