

HARNESSING GROUNDNUT OIL AS AN ENTREPRENEURIAL SKILL AND AN EMPIRICAL APPROACH

AJAGONO MICHAEL

(mikkoajagono@gmail.com)

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AKPORHONOR, OHWEKEVWO

School of General Studies, Delta State Polytechnic, Otefe-Oghara

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Abstract

In Nigeria and other African countries, poverty is described as a socio-economic problem that affects growth and development in the region. The government of these countries have designed and embarked on several measures to reduce the degree of poverty and improve the social well-being of the people. In Nigeria, the federal government has initiated several measures and policies to reduce the level of poverty among the masses. Entrepreneurship is one the measures embraced by the government to reduce mass poverty and unemployment in the country. The research aims at investigating the potentials and acceptability of entrepreneurship skills in wealth creation especially in the rural areas in Nigeria. The statistical analysis used is the use of questionnaire and focused group discussion to gather our data. Simple percentage and chi-square will be used to analyses the data. The research is subdivided into three phases. Phase one would be the determination of the quality of groundnut oil derived from groundnut fruits harvested from the study location and its immediate environment in Delta State. It is designed to be a case study of groundnut oil production utilizing local materials and technology in Ughelli North Local Government Area in Delta State.

Keywords. Entrepreneurship, Skills, Poverty, Development, Focused Group

Introduction:

Groundnuts are consumed to enjoy our free time and can be used as a regular snack while watching your favourite movies. Groundnuts are used regularly in our day-to-day life which is a legume plant. The scientific name of the groundnut is *Arachis hypogaea* which grows in temperate and tropical regions. In industries, groundnuts are used in the production of oil, beverages, flour, protein concentrates, and sweet candy. Around 35 centuries ago the cultivation of groundnut started in South and Central America. The demand for groundnut oil increased day by day and the cultivation also spread all over the globe. Along with the oil, groundnuts are a rich source of bioactive compounds, proteins, minerals, and vitamins. Let us discuss the important health benefits of groundnut oil.

The importance and nutritional and health benefits of groundnut oil and the attendant demand for the commodity makes it a product that is marketable in Nigeria and hence it does

have entrepreneurial potential. The proposed research envisage little or no problem with the marketing of finished products by participating/trained entrepreneurs.

The research is designed to develop and evaluate the potentials of local entrepreneurial skills in groundnut oil production by harnessing the local raw materials/technology that is readily available in the rural areas in Ughelli North Local Government Area and its environs in Delta State. Nutritional and chemical analysis of the groundnut oil would be determined to ensure that it is safe, nutritionally valuable and free from contamination or other adverse components that maybe harmful to consumers

The raw materials and instrument/equipment for the groundnut oil production would be designed to reflect the principles and desire of the Nigeria government to maximize the scarce resources in Nigeria.

Statement of the problem

As the Nigerian economy struggles with recession and unstable income from the oil sector, there is dire need for the government and leaders of all relevant stakeholders to seek for alternative means of creating wealth and jobs for the Nigerian populace.

Scholars agreed that to combat poverty, entrepreneurial development within low income communities is a viable strategy. Kenneth and co-researcher use the framework by Oldsman and Hallbey (2002) to examine the entrepreneurial outreach initiative, which has spurred economic growth. The result disclosed that entrepreneurial activities in low- income communities have indeed reduced poverty (Kenneth et al, 2004). Entrepreneurship as a form of education is generally acknowledged globally as a means for job creation for the unemployed and young and fresh graduates from institutions of higher learning such as colleges of Education, Polytechnics and universities (Hisrich and Peter, 2002). Aina and Salako (2008) described entrepreneurship as the willingness and ability of an individual to seek out investment opportunities and takes advantage of scarce resources to exploits the opportunities profitably. It is the process of creating something new with value by devoting the necessary time and efforts, assuming the accompanying financial social risks at the end receiving resulting reward.

Again, entrepreneurship can be seen as the practice of starting new organizations or revitalizing existing organizations, generally in response to identified opportunities with the aim of creating wealth and job opportunities. Entrepreneurship thus involves identifying, initiating, organizing and bringing a vision to life, be it a new product, service, process, organizational strategy, promotional strategy or a niche market (Akinwumi, 2012). According to Caree and Thurik (2002) an entrepreneur is an enterprising individual who builds capital through risk and /or initiative.

Goals and Objectives of the Research

The Research aims to also encourage Small and Medium Scale Enterprises, young scientist and researchers in Nigeria and West Africa region with technological knowledge and strong scientific evidence to explore and utilize groundnut fruits/seed and other naturally available plants in the development of viable supplements and/or medicines that could be of tangible commercial value for them.

The Justification of this research is using entrepreneurship to promote development in our society. Entrepreneurship is a relatively new field of research. Although During the last decade it has gained extensive interest beyond the usual areas of management studies (Landstrom, 2005). This is because of its externalities. Just as in many other fields of research in social sciences, entrepreneurship research has its roots in the development of and changes in society. In many nations, especially in Europe, entrepreneurship became a vehicle to solve regional and national problems and to stimulate growth (Alain Fayolle and Paula Kyro, 2008). Developing entrepreneurship has been identified as a means of providing employment and a powerful weapon of fighting poverty in the country. Entrepreneurship development is crucial in boosting productivity, increasing completion and innovation, creating employment and prosperity and revitalizing economies

Literature Review

According to Arogundade, entrepreneurship education and training entails philosophy of self- reliance such as creating a new cultural and productive environment, promoting new sets of attitudes and culture for the attainment of future challenges (Arogundade, 2011).

The development process of any country is determined by the way the production forces in and around the economy is organized. For most countries the development of industry had depended a great deal on the role of private sector. Entrepreneurship has played a major role in this regard. This opinion is supported by Ogundele (2007) that the promotion and development of entrepreneurial activities would aid the dispersal and diversification of economic activities and induce even development in a country. Similarly, Osuagwu (2002) added that entrepreneurial development in Nigeria should be perceived as a catalyst to increase the rate of economic growth, create job opportunities, reduces import of manufactured goods and decrease the trade deficits that result from such imports.

Research Product (groundnut Oil)

Groundnut oil is edible oil derived from the ground shell/ pod ,a tropical plant, and is largely consumed for edible and non-edible purposes which include cooking, bakery, confectionary, pharmaceutical and cosmetics. It is a clear liquid at ambient temperature and has a pleasant aroma. Coconut oil primarily consists of saturated fatty acids (>94%) and the major part of the saturated fatty acids are medium chain fatty acids (MCFA) (>51%) which are easily digestible and easily absorbed into the body through the portal vein and produce energy (Huiling and Carl-Erik, 2004). There are several fats and oils available from animal, vegetable and marine sources.

Properties of Groundnut Oil:

Groundnut oil may have the following properties:

- It may act as antioxidant
- It might have anti-inflammatory activity
- It may have anticancer activity
- It might have antidiabetic activity
- It might protect the heart

- It might be anti-microbial
- Groundnut oil is a rich source of monounsaturated fats, which can help lower bad cholesterol levels. [source: fdc.nal.usda.gov](https://fdc.nal.usda.gov)
- Groundnut oil is a rich source of monounsaturated fats, which can help lower bad cholesterol levels. [source: fdc.nal.usda.gov](https://fdc.nal.usda.gov)
- The consumption of groundnut oil has been associated with a reduced risk of certain types of cancer, including breast and colon cancer. [source: cancer.org](https://cancer.org)

Nutritional Value of Groundnut Oil:

Nutrient	Amount per 100 g
Fat	93.4g
Vitamin E	15.2mg
Vitamin K	4.2µg
Monounsaturated fatty acids (MUFA)	57.1g
Polyunsaturated fatty acids (PUFA)	19.9g
Saturated fatty acids (SFA)	16.2g

Groundnut oil contains several nutrients that may have many benefits for the human body. Some of the potentials are as follows:

The potential of groundnut consumption to humans are so enormous, hence below are some of the major benefits.

Potential uses of groundnut oil for heart

Twenty years of research indicated that people who frequently eat groundnut may have a lower risk of heart-related conditions. A collective data of 10 years has shown that people who consume peanuts, four to five times a week have a 30-50% reduction in heart disorders. The studies also indicated that people consuming groundnut and its oil reduced low-density lipoprotein and total cholesterol. Therefore, groundnut oil might benefit the heart. However, more studies are needed.³ If you have heart problems kindly, consult your doctor and do not self-medicate.

Potential uses of groundnut oil for cancer

Groundnut and its oil contain several phytochemicals such as campesterol, β -sitosterol, stigmasterol, and resveratrol, which may have a protective role against colon, breast, and prostate

cancer. A collective study of 10 years has shown that consumption of groundnut may lower the risk of colorectal cancer in women. It contains β -sitosterol which may fight against breast, prostate, and colon cancer by inhibiting the growth of cancer cells.³ Cancer is a serious condition, and it should be diagnosed and treated by a doctor. Do not self-medicate.

Potential uses of groundnut oil for Brain

Groundnut oil contains vitamin E and B3 which may protect against Alzheimer's disease. The bioactive compound resveratrol in groundnut also fights against Alzheimer's disease and nerve-related problems. However, more studies are required to claim these benefits of groundnut oil. If you have any brain-related problems kindly, consult the doctor and get proper medication.³

Potential uses of groundnut oil for diabetes

Groundnut maybe acts against diabetes. An animal study showed that oleic acid present in groundnut may enhance the production of insulin and reduce glucose levels. A collective study conducted by researchers of the Harvard School of Public Health consisting of 83,000 women, showed that women who consumed peanut butter or nuts had a lower risk for type 2 diabetes. However, more evidence is required to check if groundnut oil has beneficial effects on diabetes.³ Diabetes is a serious condition and must be properly diagnosed and treated by a doctor. Do not self-medicate.

Though there are studies that show the benefits of groundnut oil in various conditions, these are insufficient and there is a need for further studies to establish the true extent of the benefits of groundnut oil on human

Theoretical Framework

A focused group discussion (FGD) in research is a qualitative method where a small group of people, selected for their shared experiences or knowledge, discuss a specific topic in depth with a moderator. It's a way to gather diverse perspectives, understand how groups think, and explore the range of opinions and beliefs surrounding a particular issue.

According to Robert K. (1956) who is credited with early work on research-oriented focus group interviews, often cited as a foundational work in the field. He states that this FGD is a process of getting information from very few selected persons in both formal and informal way. He those this by engaging them in a small group discussion.

David M., (1996, 1997) states that is a key figure in the development and application of focus group methodology, emphasizing its use in participatory research and the power of group interaction. He stressed that the people or the participants must be free to express themselves without fear or favour

— Anne Abramczyk (1995):

Abramczyk defined focus groups as a phenomenological technique that collects qualitative data in a group setting.

Methodology

The research is subdivided into three phases. Phase one is the determination of the quality of groundnut oil derived from groundnut fruits harvested from the study location and its immediate environment in Delta State. This would involve chemical and biochemical evaluation of the

physicochemical parameters of the groundnut oil produced from the milling process. Toxicity evaluation of the product will also be carried out.

Phase two of the research entails the recruitment and training of interested indigenes (40) on the processes of the production of the groundnut oil in specification that ensures high quality groundnuts oils, that is impartation of the necessary entrepreneurial skills on the participants. Prototypes groundnut milling machines would be constructed to enhance faster and more efficient production mode for the groundnut oil that would be sustainable and reduce cost of production. The participants would be selected from the study area to equal representation of the communities in the study area.

Phase three entails the assessment of the socio-economic impact of the programme on the participants. This would be done by the use of questionnaire and personal interviews.

i. Study site/location

The research area covers Ughelli North local government area of Delta State. The local population in this area are predominantly farmers. The area is blessed with a lot of natural resources including the presence of crude oil and other cash crops such as palm oil trees. There are also abundant of naturally growing groundnut plants as well as commercial at level. There are always groundnuts supplied to the local market.

Materials and Sample Analysis

Materials Used

Some of the equipment to be used include Soxhlet extractor (Quickfix, England); spectrophotometer (Genssesys, England); Test tubes; digital weighing balance (Pyrex, England); water bath(Techmel, U.S.A, Hanach, U.S.A); Beakers(Pyrex, England); Autoclaves; pH meter; water bath; multi-point inoculator ; antibiotic disc dispenser; petridishes(Pyrex, England).

Chemicals/Reagents

All materials to be used are of analytical reagent grade. : ascorbic acid, Vitamin E, rutin, catechin, dilute hydrochloric acid, potassium mercuric iodide, vanillin-methanol solution, ethanol solution, α -carotene, H_2O_2 solution, phosphate buffer, distilled water.

Other materials

Wood, metals, etc. needed for the testing the efficiency of locally used types of coconut milling machine. This is aimed at increasing the efficient of coconut oil production in the locality.

Transportation of Samples to Laboratory

Samples collected would be stored in appropriate bags and transported to the laboratory for adequate storage and further processing.

Statistical Analysis

We are to use questionnaire and focused group discussion to gather our data. Simple percentage and chi-square will be used to analyses the data.

Expected Results

This research is imperative and crucial as most of the under- developed nations have taken up

entrepreneurship as a tool to eliminate poverty and to provide poor people a source of income. The outcome of the research may provide useful data to the various ministries of Youths and Development, Science and Technology as well as Ministries of Health and Agricultural developments in the States in the Niger Coastal Area that can be employed in developing economically viable projects that harvest groundnut fruits for production of medicinal or nutritional products.

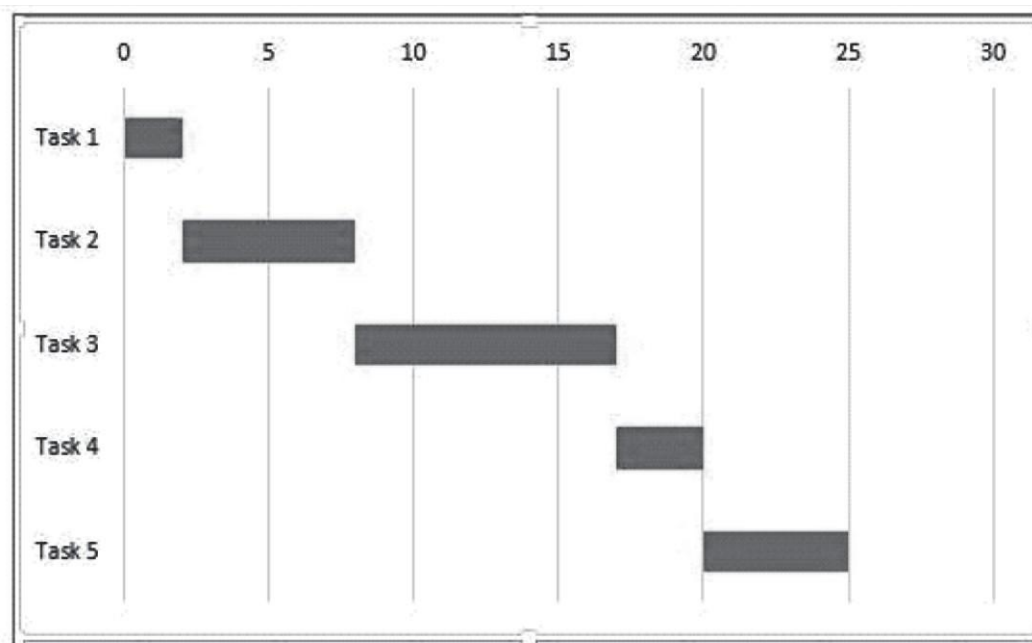
Innovation

The Innovation of this research is immensely positive to our society to the increasing population in Nigeria. It harnesses the potentials in utilizing local raw materials such as coconut fruits in building a viable entrepreneurship business that can be sustainable and potentially able to boost the local economy as well as affect household positively economically. The research primarily targets exploration of the potentials of groundnut oil in response to its viability both nutritional as well as medicinally.

Work Plan

- Stage 1: Gathering of groundnut for milling (Week 1)
- Stage 2: Identification of mill on machines (Week 2)
- Stage 3: Identification of participant (Week 3)
- Stage 4: Delivery of lecture to participant on how to harness the potential of groundnut oil (Week 3)
- Stage 5: Evaluation and publication of findings (Week 4)

Gantt chart



Summary of Research Implementation outline with estimated time frame

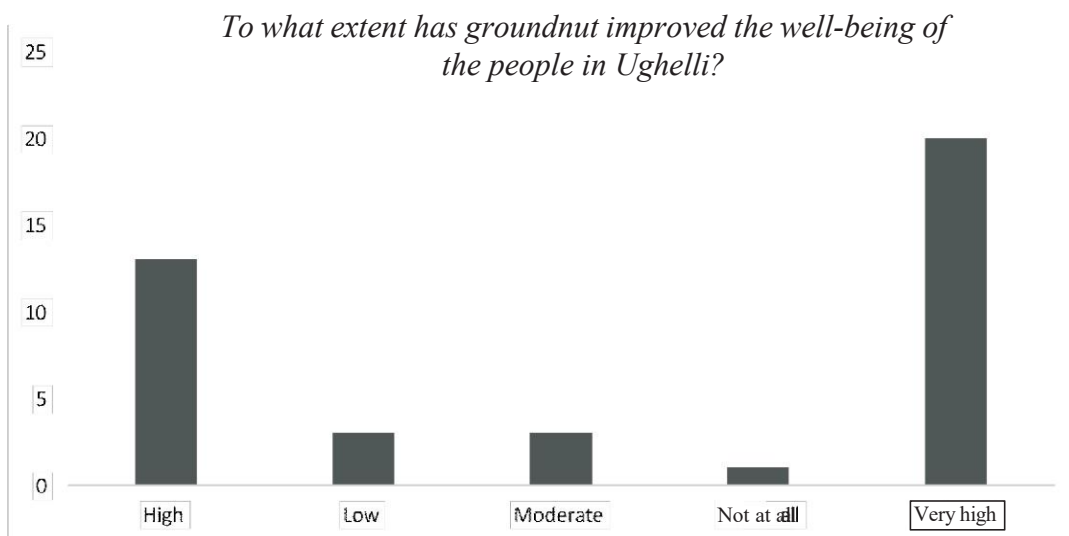
s/no	Task/ monitoring	Activity
1.	Identification of the study site and participants in the entrepreneurial skills acquisition program	Physical identification of groundnut fruits or seeds species.
2	Preparation of samples from study sites quantitative and qualitative analysis/ test	Cleaning, washing, drying , grinding, pulverizing of samples
	Extraction of groundnut oil from the groundnut seeds or fruits.	Using conventional extraction and production methods for plant species. AOAC 2004
3.	Proximate Analysis of sample produced groundnut oil	Using conventional solvent extraction methods for plant species. AOAC 2004
4	Testing efficiencies of locally used milling machines in study area	Testing efficiencies of locally used milling machines in study area
5.	Training of participants in the entrepreneurial skills acquisition programme	Training of participants in the entrepreneurial skills acquisition programme
6.	Assessment of socio-economic impact of the entrepreneurial skills acquisition programme on participants	Assessment of socio-economic impact of the entrepreneurial skills acquisition programme on participants
7.	Documentation of research finding and statistical analysis using questionnaire and focus group discussion	

Analysis of Findings

Research Question 1: *To what extent has groundnut improved the well-being of the people in Ughelli?*

Table 1:

Response Scale	Frequency	Percentage (%)
Not at all	1	2.5%
Low	3	7.5%
Moderate	3	7.5%
High	13	32.5%
Very high	20	50.0%
Total	40	100.0%



- **Null Hypothesis (H₀):** The median response is equal to **3** (neutral extent).
- **Alternative Hypothesis (H₁):** The median response is **greater than 3** (indicating high improvement in well-being).

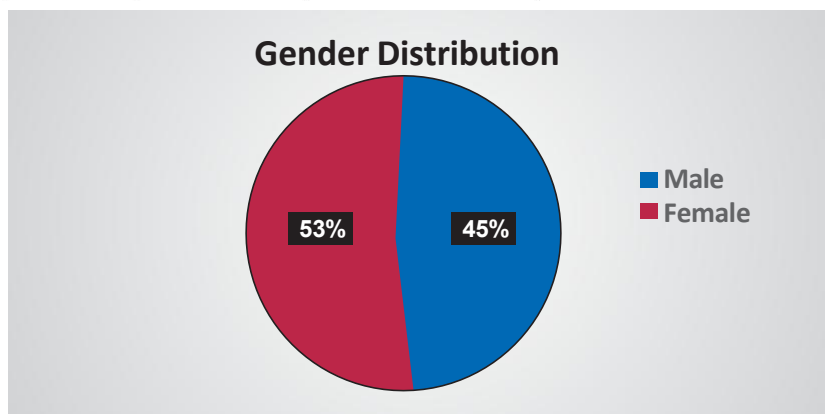
Table 2: Wilcoxon Signed-Rank Test

Test	Value
Hypothesized Median	3
Sample Size (n)	40
Test Statistic (W)	540
p-value (one-tailed, greater)	0.0008
Significance Level (α)	0.05
Decision	Reject H0
Median of Responses	4

Since the p-value = 0.0008 < 0.05, we reject the null hypothesis. There is significant evidence to suggest that the median rating for the extent groundnut has improved well-being is greater than neutral (3). Therefore, it can be concluded that groundnut has significantly improved the wellbeing of people in Ughelli.

Table 2: Gender Distribution in Groundnut Participation

Gender	Frequency	Percentage (%)
Male	19	47.5%
Female	21	52.5%
Total	40	100.0%



The gender distribution in groundnut participation shows that out of all respondents, 47.5% were male while 52.5% were female, indicating a nearly equal involvement between both genders.

However, the slightly higher percentage of female participants suggests that women may be more engaged in groundnut-related entrepreneurial activities in Ughelli, highlighting their active role in local agribusiness.

Research question 3

Participants rated the extent entrepreneurship education helped them (Entrepreneurship Score) on a Likert scale of 1–5. Their Success Measure (customer base) is also recorded on a similar scale.

Table 3: Spearman's Rank Correlation

Statistic	Value
Sample Size (n)	40
Spearman’s ρ (rho)	0.76
p-value	0.00002
Significance Level (α)	0.05
Decision	Reject H0

The Spearman's rank correlation coefficient ($\hat{\rho} = 0.76$) indicates a strong positive correlation between the extent of entrepreneurship development and the participants' business success in the groundnut industry. Since the p-value = 0.00002 < 0.05, the correlation is statistically significant. This implies that higher perceived support from entrepreneurship education is strongly associated with better outcomes in groundnut-related ventures among the participants.

Table 4: Cross-Tabulation Table

Support Level	Male	Female	Total
Strongly Disagree	6	5	11
Disagree	8	7	15
Neutral	3	5	8
Agree	1	3	4
Strongly Agree	1	1	2
Total	19	21	40

Null Hypothesis (H₀): There is **no association** between gender and perceived government support.

Alternative Hypothesis (H₁): There is an association between gender and perceived government support.

Table 5: Chi-Square Test Result

Statistic	Value
Degrees of Freedom (df)	4
Chi-Square Statistic (χ^2)	1.52
p-value	0.823
Significance Level (α)	0.05
Decision	Fail to reject H ₀

The Chi-Square test result ($\chi^2 = 1.52, p = 0.823$) shows that the p-value is greater than 0.05, indicating that we fail to reject the null hypothesis. This means that there is no statistically significant association between gender and perception of government support among groundnut entrepreneurs in Ughelli. Both male and female participants expressed similar views about the lack or presence of infrastructure support from the government.

Discussion of Result

1. *To what extent has groundnut improved the well-being of the people in Ughelli?* Since the p-value = 0.0008 < 0.05, we reject the null hypothesis. There is significant evidence to suggest that the median rating for the extent groundnut has improved well-being is greater than neutral (3). Therefore, it can be concluded that groundnut has significantly improved the well-being of people in Ughelli.
2. **Gender Distribution in Groundnut Participation.** The gender distribution in groundnut participation shows that out of all respondents, 47.5% were male while 52.5% were female, indicating a nearly equal involvement between both genders. However, the slightly higher percentage of female participants suggests that women may be more engaged in groundnut-related entrepreneurial activities in Ughelli, highlighting their active role in local agribusiness.
3. Participants rated the extent entrepreneurship education helped them (Entrepreneurship Score) on a Likert scale of 1–5. Their Success Measure (customer base) is also recorded on a similar scale.

The Spearman's rank correlation coefficient ($r_s = 0.76$) indicates a strong positive correlation between the extent of entrepreneurship development and the participants' business success in the groundnut industry. Since the p-value = 0.00002 < 0.05, the correlation is statistically significant. This implies that higher perceived support from entrepreneurship education is strongly associated with better outcomes in groundnut-related ventures among the participants.

Conclusion

In a developing nation like Nigeria, one of the goals of the government is to improve on the lives of the citizenry by the provision of affordable and accessible health care. This noble goal may be achieved by the availability of cheap medicines and nutritional products that boost the health of the populace that consume them. Again, Research is a crucial part of the response to new and emerging diseases. This research is very significant as health related products from coconut oil may provide a solution to some unsolved and growing problem of malnutrition related diseases, resistance of certain diseases to antibiotics and, a novel untapped source to combat certain infectious diseases in Nigeria. Another significant contribution of the research is the provision of the skills and knowledge for developing viable business cantered on coconut fruits which are easily accessible the local area. It is one of the examples of utilizing local materials and technology in generating wealth and improving the gross domestic product index value of Nigeria.

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