Acute poverty affects Ghana's savanna region: How oilseeds could help boost local diets

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Credit: AI-generated image (disclaimer)

In parts of Ghana there are still persistently high rates of acute malnutrition. This is despite the fact that there has been significant progress in reducing these at the national level.

The area most affected by malnutrition is the savanna region of Ghana. Most people who live in the area eat monotonous, staple-based diets that are deficient in essential micro-nutrients. Promoting the use of plant resources, specifically oilseeds and nuts, which are among the cheapest food resources in Ghana, could address sustainable food security in the country.

The region is rich in different species of oilseed bearing fruit plants. Various parts of these plants are used for different purposes ,but the seeds are usually left as waste and not used.

We conducted research on the nutritional value of a range of seeds from plants grown in the region. We found that the seeds of a large number of plant species were rich in oil.

Oilseeds have been shown to be a leading source of superior quality and speciality vegetable oils. We also found that some of the seeds contained significant levels of mineral elements including zinc, iron, magnesium, potassium, calcium, and sodium.

It is accepted world over that consuming diverse diets contribute to the overall macro and micro-nutrient adequacy, and improve the nutritional status of individuals.

It is also important because the United Nations Sustainable Development Goal 2 aims to end hunger, achieve food security, improve nutrition, and promote sustainable agriculture in every part of the world.

Evaluating the nutritional and medicinal value of the native, drought tolerant oilseeds is timely. Once the potential of the identified oilseeds and nuts has been established, their consumption should be promoted to improve the nutritional status of people.

What did we do?

We Sesamum Indicum commonly called sesame, melon seeds Cucumeropsis edulis known in Ghana as Wrewre, and pumpkin seeds, Cucurbita pepo. All are native to the people in the savanna regions of Ghana and thrive despite the harsh climatic conditions.

We evaluated the nutritional and medicinal value of the seeds and then set about measuring the levels of macro-nutrients such as proteins, fats or oils, fiber and carbohydrates in the seeds. We also established the presence of a range of minerals. These represent the micro-nutrients present in the seeds.

We also estimated the seeds' antioxidant compounds as well as their medicinal value.

We found that sesame seeds gave a high energy value followed by melon seeds and pumpkin seed.

The same trend was observed for the crude fat or oil content of the seeds. Sesame seeds gave more than 50% fat or oil content while melon gave 48% and pumpkin seeds 44% fat.

Pumpkin seeds had the highest protein content while sesame seeds gave the least.

Mineral elements such as calcium, zinc, iron, magnesium, potassium and sodium were also evaluated. They are essential elements and contribute to the proper functioning of the human body. For instance, an adequate supply of calcium helps in the prevention of many diseases. Iron in diet is required for the proper functioning of the immune system, electron transfer reactions, gene regulation, cell growth, and transport of oxygen.

Data from the quantification of the mineral elements showed that the seeds may contribute significantly to the daily requirement for an adult human being with an average body weight.

What next

Our findings show that the seeds promise to be a valuable source of food and could contribute to food security in the region. They have good nutritional value and are high in energy, protein and minerals, and low in anti-nutritional factors. They also serve as immune boosters and protective food against autoimmune diseases triggered by excess free radicals in our systems.

The government may include some of these underutilized but nutritious seeds in the flagship agricultural revitalisation program, planting for food and jobs. The government may also provide support for farmers who cultivate and gather these seeds to ensure their availability.

Pumpkin seeds are currently used for planting with less contribution to dietary nutritional enhancement, melon seeds and the sesame seeds are used by some of the community members as thickeners for soups and stews with little emphasis on the nutritional and medicinal value of the seeds.

There is the need to increase awareness on the nutritional value of seeds and how they could be used in food formulations and to fortify the usual diets to reduce malnutrition in communities. Increasing awareness about the availability and quantities of oilseeds in the different communities found in the northern savanna regions of Ghana will also be a crucial step. There is also the need to come up with improved methods of seed processing to facilitate utilization.

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