

Determination of Proximate Composition of roasted Senna Coffee Seed (*Senna occidentalis*).

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Abstract

Senna coffee Cassia occidentalis is a tropical herbal plant that is drought tolerant and found in almost all parts of the tropics. The plant is believed to have several medicinal benefits against many diseases such as malaria fever, typhoid fever, and it also serve as laxative or decongestant to some people. This research work is intended to determine the proximate composition of the seeds. The proximate analysis was conducted to determine the macro nutrients present in the seed which include carbohydrate, protein, lipid and water. Samples were collected and prepared within the school premises, that is Mai Idriss Aloomo polytechnic, Geidam. The plant Senna occidentalis seeds were plucked from the plant which was found within the school's compound and the neighboring households. The seeds were dried and separated the pods by crushing and winnowing. Cleaned and dried seeds were then roasted and grinded into fine powder which was used as the sample for carrying out the various analyses. AOAC (Association of official analytical Chemist) method was adopted

Keywords: Proximate, senna coffee, roasted.

1.0 Introduction

Coffee is the most commonly consumed caffeine containing beverage worldwide. It is consumed next to water and tea because of its health benefits (Wachamo 2017). Most consumers of coffee start their day with a cup of the beverage after breakfast and also finish their work day with a cup of it. The earliest potential reference to coffee consumption and the first written mention of coffee was attributed to Razes a tenth century Arabian physician who indicated that coffee cultivation may have begun as early as 575 AD (Wachamo 2017). However, the first written documentation of the medicinal properties and uses of coffee was reported by the middle eastern physician, (Avicenna, 980-1037 AD) who used it as a decongestant, muscle relaxant and diuretic infusion. It is said that in the thirteen century a doctor- priest from mocha, sheik Omar also discovered coffee in Arabia and used it as cure for many different types of illness. The earliest coffee houses opened in Mecca in the fifteenth century, but were primarily reserved for religious purposes (Fara, 2018). Coffee contains diverse compounds that are reported in recent times which are associated with beneficial effects. It is a complex mixture of chemicals which provide significant amount of chlorogenic acid and caffeine (Wachamo, 2017). Unfiltered coffee is a significant source of cafestol and kahweol which are diterpenes that are implicated in cholesterol raising effect of coffee. It is the main source of caffeine in many populations. Moreover, it also contains different chemicals like carbohydrate, lipids, nitrogenous compounds, vitamins, minerals alkaloids, phenol compounds. Chlorogenic acid (the most prominent), caffeic acid melanoidin are all anti-oxidants found in coffee (Wachamo, 2017). The major important chemical

constituents of coffee are caffeine, chlorogenic acid, cafestol, kahweol and other micro nutrients. (Wachamo, 2017).

Senna coffee *Cassia occidentalis* is a tropical plant that has been used as a traditional medicine for treatment of various diseases. Vijayalkashimi *et al.* (2013) *C. occidentalis* extract is known traditionally to have anti-bacterial, anti-fungal, anti-malarial, anti-inflammatory, anti-oxidant, hepato-protective and immunosuppression activity. The phytochemical screening of *C. occidentalis* showed the presence of carbohydrate, saponin, sterols, flavonoids, resins, alkaloids, terpenes anthraquinone and glycosides. (Vijayalkashimi *et al* 2025).

The plant senna coffee (*Cassia occidentalis* L) is Leguminosae is regarded as an edible weed of agriculture or famine food. (Humpry et al 1993). *Cassia occidentalis* has been widely consumed by local people as coffee substitute. The seeds are brewed in to a coffee like beverage for asthma and a flower infusion is used to treat bronchitis (Babitha 2011).

2.0 Materials and methods

2.1 Sample Collection and preparation

The seeds of the plant senna coffee were plucked from the plant which is in pods and then sun dried them for three days for easy trashing using mortar and pestle manually to avoid breaking the seeds. The seeds were then subjected to winnowing to remove the chaffs of the pods using current of flowing air to have clean seeds free from foreign materials. The clean seeds were then further dried for two days before roasting. The roasting of the seeds was carried out lightly and carefully to avoid over heating which could temper the colour and likely the nutrients. The roasted seeds were then cooled and grinded in to fine powder which was

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used as the sample for carrying out the various analysis.

The moisture of samples, carbohydrate total ash content and the acid soluble ash were determined using heating oven and muffle furnace that is proximate analysis and ashing. The protein content was determined using kjeldal method, that is digestion method.

2.2 Proximate analysis

The moisture content, the carbohydrate content, fat content and the protein content were determined using AOAC 1992 method. Using two grams of the already prepared sample.

Table 1: **Proximate composition of roasted senna coffee seed**

Parameter	percentage
Moisture content	8.10 %
Carbohydrate Content	54.00 %
Protein content	22.10 %
Fiber content	10.17 %
Lipid content	2.01 %
Total ash content	3.61 %

Conclusion

The research studied the average proximate composition of the roasted senna occidentalis seed. The research results showed that senna coffee seed (*Senna occidentalis*) is rich in carbohydrate about 54%. It has protein content of 10.10%. and moisture content of 8.10%

Acknowledgement

The authors acknowledge the Sponsorship of this research by (tetfund) Tertiary education trust fund Under Mai Idris Aloom polytechnic Geidam, Yobe state, Nigeria.

3.0 Results and discussion

The results showed that senna coffee seed (*Senna occidentalis*) is rich in carbohydrate about 54%. It has protein content of 10.10%. and moisture content of 8.10%. The fiber content is found to be 10.17% indicating good source of fiber. The lipid content is 2.01% an indication of low fat content. It could be a good source of minerals considering the ash content of about 3.60% percent although it needs to be ascertained using sophisticated methods such as spectroscopy and chromatography.

The results of the average proximate composition of the roasted senna occidentalis seed were presented in tabular form below:

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