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# Effects of Roasting as Preservative Method on Food Value of the Runner Groundnuts, Arachis hypogaea

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**Abstract :** Roasting is one of the oldest preservation method used in foods such as nuts and seeds. It is a process by which heat is applied to dry foodstuffs without the use of oil or water as a carrier. Groundnut seeds, also known as peanuts when sun dried or roasted, are among the oldest oil crops that are mostly consumed as a snack, after roasting in many parts of South Africa. However, roasting can denature proteins, destroy amino acids, decrease nutritive value and induce undesirable chemical changes in the final product. The aim of this study, therefore, was to evaluate the effect of various roasting times on the food value of the runner groundnut seeds. A constant temperature of 160 °C and various time-intervals (20, 30, 40, 50 and 60 min) were used for roasting groundnut seeds in an oven. Roasted groundnut seeds were then cooled and milled to flour. The milled sundried, raw groundnuts served as reference. The proximate analysis (moisture, energy and crude fats) was performed and the results were determined using standard methods. The antioxidant content was determined using HPLC. Mineral (cobalt, chromium, silicon and iron) contents were determined by first digesting the ash of sundried and roasted seed samples in 3M Hydrochloric acid and then determined by Atomic Absorption Spectrometry. All results were subjected to ANOVA through SAS software. Relative to the reference, roasting time significantly ($p \leq 0.05$) reduced moisture (71%–88%), energy (74%) and crude fat (5%–64%) of the runner groundnut seeds, whereas the antioxidant content was significantly ($p \leq 0.05$) increased (35%–72%) with increasing roasting time. Similarly, the tested mineral contents of the roasted runner groundnut seeds were also significantly ($p \leq 0.05$) reduced at all roasting times: cobalt (21%–83%), chromium (48%–106%) and silicon (58%–77%). However, the iron content was significantly ($p \leq 0.05$) unaffected. Generally, the tested runner groundnut seeds had higher food value in the raw state than in the roasted state, except for the antioxidant content. Moisture is a critical factor affecting the shelf life, texture and flavor of the final product. Loss of moisture ensures prolonged shelf life, which contribute to the stability of the roasted peanuts. Also, increased antioxidant content in roasted groundnuts is essential in other health-promoting compounds. In conclusion, the overall reduction in the proximate and mineral contents of the runner groundnuts seeds due to roasting is sufficient to suggest influences of roasting time on the food value of the final product and shelf life.

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