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## Zinc content and bioavailable zinc of staple grains and domestic water from Kanam Local Government Area, North-Central Nigeria

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Zinc is one of the essential trace elements in human nutrition. Adequate zinc nutrition is essential for human health because of zinc's critical structural and functional roles in many enzyme systems that are involved in gene expression, cell division and growth, and immunologic and reproductive functions. On account of its very important roles in strategic biologic functions in the body, inadequate dietary intake of zinc has serious health consequences. The objective of the study was to investigate the levels of zinc in various staple grains grown in Kanam LGA, Nigeria. Samples of five grains (maize, guinea corn, millet, cowpea, and groundnut) and domestic water sources from Kanam Local Government Area, Nigeria; a population of suspected zinc deficiency, were analyzed for their zinc content using inductively coupled plasma-mass spectrophotometry. The samples were wet-ashed according to the protocol of Hill et al. (1986) before the analysis. Results were expressed as mean±standard deviation. The results showed wide variation in the zinc content of the grains. The mean zinc content was highest in cowpea ( $40.34\pm 1.32\mu\text{g/g}$ ), followed by groundnuts ( $32.75\pm 0.66\mu\text{g/g}$ ), and least in yellow maize ( $22.35\pm 1.17\mu\text{g/g}$ ). Other samples such as red and white sorghum, white maize, and millet had zinc contents varying from 23.82 to 25.89 $\mu\text{g/g}$ . Zinc content of hand-dug well water sources also varied widely from  $1.921\pm 0.060$  to  $4.940\pm 0.103\text{mg/l}$ . Phytate/zinc ratio was determined to ascertain the level of bioavailability of zinc in the foodstuffs. Based on the phytate/zinc molar ratio, cowpea appears to have the most bioavailable zinc followed by red and white sorghum, while groundnut has the least. The results are discussed and it is concluded that the staple grains, except cowpea and domestic water sources, may not be good sources of dietary zinc.

### Biography

Kiri H Jaryum completed his PhD at the age of 45 years from the University of Jos, Nigeria and has risen to the rank of Senior Lecturer (Assistant Professor) in the same university. He is a fullbright scholar. He has published more than 18 papers in reputed journals and has been serving as a reviewer and an editorial board member to many journals of repute.

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