
The Role of Elephant Grass (*Pennisetum purpureum* L. Schumach) in Global Food Security

Nkechi Akah*¹ and Jane Ani

¹Department of Food Science and Technology, University of Nigeria, Nsukka (UNN) – Department of Food Science and Technology, University of Nigeria, Nsukka, Nigeria, Nigeria

Abstract

Dietary diversification is globally considered a key and lasting solution to the prevalent nutritional and health problems. The cultivation, consumption and utilization of wild, neglected and/or underutilized plants with nutritional potentials were considered a major way to achieve dietary diversity. It is noted that these species have great under-exploited potential for contributing to food security and nutrition. Elephant grass is one such wild and neglected crop. Although primarily utilized as forage, the tender shoot is edible and is a traditional relish from prehistoric times in some parts of Nigeria. Elephant grass belongs to the gramineae family, is native to Tropical Africa, and has unique agronomic characteristics among them high stress tolerance, adaptability and yielding capacity. In fact, elephant grass is reported to be one of the highest yielding Tropical forage grasses. Adopting stress-tolerant and high yielding crop varieties by agricultural systems was considered one of the mitigation options to override the negative impacts of climatic change, improve household food security and thereby achieve sustainable livelihood. Elephant grass edible stem is characterized by low calories (19.22 Kcal/100g), low sodium (4.59 mg/100g), important amounts of iron (3.12 mg/100g) and potassium (515.43 mg/100g), significant amount of zinc, and high K factor of 100 compared to that reported in some conventional vegetables (6-20). It contains high levels of B-group vitamins which occur in trace to insignificant amounts in all vegetables. In fact, the concentrations of vitamins B1, B2, B3 and B6 (mg/100g fresh weight) in 100 g portion of the edible stem (1.23 mg/100g, 4.37 mg/100g, 12.35 mg/100g, 2.40 mg/100g and 17.23 mg/100g, respectively) adequately satisfy the RDAs for the respective B-vitamins for normal healthy adults which are 1.2, 1.2, 15, and 1.3 mg/100g, respectively. It also contains high amounts of alkaloids, flavonoids and anthocyanins, and significant quantity of oil with high level of linolenic acid (11.45%), occurring at a level comparable to the concentration found in soybean (8%) which is the conventional source of linolenic acid. Elephant grass thus appears to be a unique plant that can contribute immensely to good nutrition and food security as well as a rich health and therapeutic resource.

*Speaker