

Evaluation of the Impact of Oil and Gas Pollutants on the Chemical Composition of *Abelmoschus esculentus* Moench and *Pterocarpus mildbraedii* Harms.

Authors:

Ujowundu CO¹,
Nwaogu LA¹, Igwe KO¹,
Ujowundu FN¹,
Belonwu DC².

Institution:

1. Department of
Biochemistry, Federal
University Technology
Owerri, Nigeria.

2. Department of
Biochemistry, University of
Port Harcourt, Nigeria.

Corresponding author:
Ujowundu CO.

ABSTRACT:

The phytochemical, proximate, mineral and vitamin contents of *Abelmoschus esculentus* Moench and *Pterocarpus mildbraedii* Harms were investigated. Plant samples were harvested from Polluted Environment (PE) at Izombe in Oguta Local Government Area- an oil drilling and gas flaring environment. The results obtained were compared to identical vegetables harvested from Eziobodo in Owerri West Local Government Area, designated as Unpolluted Environment (UPE). Our result showed that *A. esculentus* and *P. mildbraedii* have excellent nutritional value, which can confer biochemical and physiological advantage to humans. The quantitative proximate composition showed that the carbohydrate and ash contents of samples harvested from PE differed significantly ($P < 0.05$) from samples obtained from unpolluted environment. The protein, crude fibre, moisture and total fat contents of samples from PE differed non significantly ($P < 0.05$) when compared with samples obtained from UPE. The phytochemical contents of *A. esculentus* and *P. mildbraedii* were significantly higher in samples from UPE than in samples from PE. The mineral and vitamin contents were also determined. The concentration of nutritionally important macro and micro elements indicates that the two vegetable samples studied are rich sources of minerals and, therefore, can be used to improve the diet of both humans and livestock. This study also showed that environmental pollutants emanating from the activities of oil and gas industries can impact negatively on some important chemical and nutritive compositions of edible vegetables.

Keywords:

Oil and gas, Pollution, Phytochemicals, Vitamins, Oha, Okra.