

6-Shogaol Attenuates Colonic Tumorigenesis and Oxidoinflammatory Response in Male balb/c Mice

Daniel Anyebe



Federal university Birnin kebbi, Birnin-kebbi, Kebbi state Nigeria

Abstract:

Colorectal cancer (CRC) is the fourth leading cause of cancer related mortality worldwide. Several complications such as male reproductive dysfunction have been associated with increased incidence and prevalence of colorectal cancer. Adverse effects have been associated with the treatment of colorectal cancer using the available therapeutic agents. A bioactive component of *Zingiberofficinale*, 6-Shogaol(6-S) has been reported to be biologically active in experimental models. However, there is limited information regarding the effect of 6-S on CRC. This study therefore investigated the biological activity of 6-S on CRC.

Sixty male BALB/c mice (19±3g) were used for this experiment. Animals were divided into four groups (n=15). Groups 1 and 2 were administered corn oil (2mL/kg) and 6-S (20 mg/kg) orally for 16 weeks. Groups 3 and 4 received a single dose of AOM (10mg/kg, iP) and 3 cycles of dextran sulphate sodium (DSS) (2% w/v), singly (group 3) or in combination with 6-S (20 mg/kg) (group 4) for 16 weeks. Biomarkers of CRC such as oxidative stress, inflammation, cell proliferation were assessed colon tissues by microscopy, ELISA and spectrophotometric techniques. Data were analyzed using ANOVA at $p=0.05$.

Tumour incidence, ulcerated adenocarcinoma, tumour necrosis factor alpha, Ki-67 protein, carcinoembryonic antigen, nitric oxide levels, lipid peroxidation and myeloperoxidase activity were significantly suppressed with pre-treatment with 6-S when compared with the mice treated with AOM/DSS alone. Additionally, glycogen synthase kinase 3 β , CAT, SOD, GPx activities and GSH level decreased in mice that received AOM/DSS only. This decrease was conversely prevented in 6-S pre-treated mice.

In conclusion, 6-Shogaol showed chemoprotective effect on AOM/DSS induced adenocarcinoma and colorectal cancer in mice through its antioxidant, anti-proliferative and anti-inflammatory properties. Thus, 6-Shogaol could be a potential phyto-compound for use in the prevention and management of colorectal cancer.



Biography:

Daniel Anyebe has completed his Master of Science, and he is working as an assistant lecturer in the Department of Biochemistry and Molecular Biology at Federal University Birnin-kebbi, Kebbi State Nigeria.

Speaker Publications:

1. " Estimation of the potassium bromate content in low and high price bread sold in birnin kebbi", July 2020.
- 2." Genes predisposing to neonatal diabetes mellitus and pathophysiology: Current findings", April 2020, Journal of Neonatal-Perinatal Medicine DOI: 10.3233/NPM-190353
- 3." Acute toxicity study of crude methanol leaf extract of Ficus exasperata Vahl on male Wistar albino rats", March 2020

[World Cancer, Oncology and Therapeutics Congress](#), Webinar, June 22-23, 2020

Abstract Citation:

Daniel Anyebe, 6-Shogaol Attenuates Colonic Tumorigenesis and Oxidoinflammatory Response in Male balb/c Mice, Cancer Congress 2020, World Cancer, Oncology and Therapeutics Congress, Webinar, June 22-23, 2020.

(<https://cancer-oncology.cancersummit.org/abstract/2020/6-shogaol-attenuates-colonic-tumorigenesis-and-oxidoinflammatory-response-in-male-balb-c-mice>)