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The effect of Allium Sativum (garlic) and Hibiscus Sabdariffa (Jamaican sorrel) on cancer cells

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This study demonstrates that these natural products can destroy human larynx (hep-2) and lung (A549) cancer cells while having negligible effect on non-cancerous cells (BHK). Viability studies indicated that garlic had a greater anti-neoplastic effect on lung cancer cell than the sorrel extract. DNA electrophoresis showed a unique band of 0.5 kb in cancer cell lines. Events characteristic of cell death, including cell fragmentation, cytoplasmic shrinkage and chromatin condensation were observed. The morphological changes observed in laryngeal cancer cells was most remarkable when treated with sorrel extracts as compared with garlic, thereby suggesting that the mechanisms associated with each treatment modality is cell-type specific. Hep-2 cells proved to be significantly affected by both sorrel extracts (seed and calyx) but more so to that of the seed. The fact that Hep-2 cells were destroyed indicated that the natural products (more so the seed extract) have overridden the resistance capacity of the Bcl-2 gene. The A549 cell line also displayed an anti-neoplastic response to all three natural products, with greatest response to the garlic extract followed by the seed extract. . These observed differences in degree and format of morphological change suggest that the mechanism of the natural product extract may vary both with cell line and extract treatment. Further investigation will be needed to understanding the mechanism by which cancer cells are affected by natural products..

Biography

Paul Gyles, born in Jamaica, earned his Bachelor in Medical Technology from Howard University before going on to earn a Master's degree in Applied Microbiology and later Ph. D in Molecular Cell Biology and Endocrinology. Following his education, he joined the faculty of the Northern Caribbean University in 1996 here he would become an associate professor and chair for the departments of biology, chemistry, and medical technology. By 2003, he had been appointed dean for the College of Natural and Applied Sciences at the university. In 2009 Gyles - with the help of Patrice Williams-Gordon and Julieth Bailey-Penrod - presented their seminal research on the effect of Garlic and Jamaican Sorrel on cancer cells. What they found was that these accessible, mundane foods have the ability to help treat cancer. In addition to this, Dr. Gyles also co-wrote a research paper with Alston Miller concerning water pollution in Jamaica and how it relates to illnesses experienced by the population that was published in the International Environmental Earth Sciences Journal.