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# Essential chemicals in kale can be altered by natural amendments

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Plant growth, yield and quality responses to natural amendments have been widely studied. However, little is known about alterations in essential phytochemicals in response to different types of natural amendments. A greenhouse pot-experiment was performed to determine the influence of three different natural amendments: dry vermicast, potassium (K)-humate and volcanic mineral and a control (no amendment) on the chemical composition of kale (*Brassica oleracea* L. var. *Acephala* '*Ripbor*'). Plants grown in the dry vermicast had the highest amounts of essential macronutrients followed by volcanic mineral, while the least was found in the control plants. The essential micronutrients, manganese and copper, were also high in the dry vermicast. Additionally, the levels of polyunsaturated fatty acids and monounsaturated fatty acids were in the kale plants were increased following the application of dry vermicast and volcanic mineral, but not K-humate. Plant tissue content of omega-3 fatty acids were high in the dry vermicast and low in the K-humate and the volcanic mineral treatments. Omega-6 fatty acids were unaffected by treatment differences. Total phenolic content and antioxidant capacity were highest in plants treated with K-humate, and the least was recorded by the dry vermicast treated plants. In conclusion, dry vermicast proved to be the most efficacious in enhancing the overall phytochemical composition of kale 'Ripbor' as compared to the other natural amendments.

## Biography

Lord Abbey has a background in Plant Science and Pharmaceutical R&D with a research focus on sustainable food systems and compost quality enhancement for health and wellbeing. He has completed his BSc (Hons) Agriculture from the University of Ghana. He has continued his studies in the UK, The Netherlands and Canada. He is currently a Professor at Dalhousie Faculty of Agriculture where he teaches and supervises undergraduate and graduate students. His research program is in Plant Nutrition and Physiology. Some of his current research activities include exploration of ethnic crops in NS; aromatic and medicinal plants; onion fertilization and postharvest losses; and value-addition and alternative uses of compost and vermicompost. He is a Board Member of Living Earth Council; Member of the Nova Scotia Institute of Agrologists (NSIA); the International Society for Horticultural sciences (ISHS); and the Canadian Society of Horticultural Science (CSHS). His passion is travelling and nature-walk.

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