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Identification of the response pathways of *Escherichia coli* and *Enterococcus faecalis* to glyphosate and its major breakdown compound aminomethyl phosphonic acid (AMPA)

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Glyphosate is the active ingredient in most herbicides and has increasingly been reported as toxic. Its major breakdown product, AMPA, albeit to a lesser extent has also been reported to be toxic to rodents and some aquatic lives. Residues of glyphosate and AMPA have been shown in some foods and feeds derived from genetically modified herbicide resistant crops. Thus, bacteria will encounter varying concentrations of glyphosate and AMPA in their respective niches in their respective environments, e.g., the gut. In bacteria, glyphosate at inhibitory concentrations interferes with 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) of the Shikimate pathway. However, information is lacking on the response of bacteria to sub-lethal concentrations of glyphosate and AMPA. With the growing body of literature on the toxicity of glyphosate at ultra-low dose, it was of interest to investigate the response of bacteria to sub-lethal concentrations of glyphosate and AMPA. Proteomic and transcriptomic approaches are being used to analyze two strains of representative bacteria commonly found in the gut, *E. coli* and *E. faecalis*, exposed to sub-lethal concentration of glyphosate and AMPA. Data derived from this study provides information relevant to the evaluation of the safety of GM modified herbicide resistant crops.

Biography

Kabelo Stenger is currently pursuing his Master's degree in Environmental Sciences from the North West University in South Africa. He has completed his Bachelor's degree and honors degree in Environmental Sciences.

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