

International Conference on

MOLECULAR BIOLOGY AND MEDICINE

August 27-28, 2018 Dubai, UAE

Conjugating activity and substrate specificity of glutathione transferase from organ-pipe mud-dauber wasp (*Trypoxylon politum*)

Opeyemi E Okeowo, Olufemi S Bamidele, Adeyemi O Ayodeji and Joshua O Ajele
Federal University of Technology, Nigeria

Glutathione Transferase (GST) catalyzes the conjugation of glutathione with a large variety of toxic substances thereby rendering them water soluble for elimination from cells. The Organ-Pipe Mud Dauber, *Trypoxylon politum* is a common wasp found beneath the roofs of houses where it builds nest with mud. Since soil, a part of our immediate environment often gets contaminated with chemical pollutants including pesticides. The aim of the study is to evaluate organ distribution of GST in *Trypoxylon politum* as well as determine the substrate specificity of the enzyme. Crude enzyme was prepared from the head, thorax and abdomen of the insect by homogenization and centrifugation. Glutathione transferase activity was determined and purification of the enzyme was carried out by GSTrap 4BTM. Substrate specificity was evaluated with some known substrates of GST. The specific activities of GST from the head, thorax and abdomen of *Trypoxylon politum* were 16.35 $\mu\text{mol min}^{-1} \text{mg}^{-1}$, 26.29 $\mu\text{mol min}^{-1} \text{mg}^{-1}$ and 38.89 $\mu\text{mol min}^{-1} \text{mg}^{-1}$ proteins respectively. After the purification of GST from abdomen of *Trypoxylon politum*, the specific activity increased to 193.74 $\mu\text{mol min}^{-1} \text{mg}^{-1}$ proteins. This GST showed conjugating activity with ethacrynic acid, p-nitrophenylacetate, haematin, 1-chloro-2, 4-dinitrobenzene and 2, 4-chloro-1-nitrobenzene. The activity and broad substrate specificity of GST in the abdomen of *Trypoxylon politum* suggest possible detoxification of chemical pollutants from soil. Hence, glutathione transferase in organ-pipe mud dauber, *Trypoxylon politum* might be a possible biomarker of chemical pollutants from soil.

okeowoopoyemi86@gmail.com

Notes: