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The protective effect of Apocynin on Ochratoxin induced nephrotoxicity in rats

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Ochratoxin A (OTA) is a natural mycotoxin with important implications for animal and human health, such as nephrotoxicity and hypertension. Several mechanisms of OTA toxicity have been proposed, as well as the contribution of OTA to cause an imbalance between oxidant and antioxidant parameters. In our previous paper we demonstrated, in rats treated with OTA, that the increased production of reactive oxygen species (ROS) is linked to a reduction in glomerular filtration rate (GFR) and with an increase in blood pressure. In addition, we have shown that treatment with recombinant mitochondrial manganese containing superoxide dismutase (rMnSOD) plus OTA significantly reduces hypertension and restores GFR levels. In this study, we have evaluated the involvement of the proximal tubule (PT) in the renal damage induced by OTA. The PT absorbs 60% to 70% of the filtered fluid and NaCl. Therefore, the changes in PT reabsorption can have profound effects on the kidney and fluid balance of the body and may contribute to the development of hypertension. Using *in vivo* micropuncture experiments, in OTA treated rats we have found that absolute fluid reabsorption (J_v) in PT has been reduced, and also the expression of the principal sodium transporter in the PT: The sodium/hydrogen exchanger isoform 3 (NHE3). Instead, in the rat treated simultaneously with OTA and Apocynin, we have found a significant restore of J_v and NHE3 expression. Considering the O_2^- scavenging activity of Apocynin, our data suggest an essential role of ROS in nephrotoxicity induced by OTA in PT.

Biography

Maria Valeria Puzio is a Veterinarian Graduate with the highest marks. She is PhD student in the second year of Veterinary Science. Her studies focused on viral oncolysis and hypertension induced by drugs and environmental contaminants in animal model. She published three international papers and two poster communications.

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