Endpoint biomarkers in Nile tilapias (*Oreochromis niloticus*) and armored catfish (*Pterygoplichthys anisitsi*) exposed to diesel oil, pure biodiesel and biodiesel blends.

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Currently, diesel oil are being gradually replaced by biodiesel, a renewable energy source, cheaper and less polluting. However, little is known about the toxic effects of this new energy source for aquatic organisms. Thus, the aim of this work was to comparatively analyze the biochemical responses that trigger oxidative stress and those related to phase I and II of xenobiotic metabolism among two species of fish, the Nile tilapia, *Oreochromis niloticus*, and the armored catfish, *Pterygoplichthys anisitsi*, after exposure to diesel oil and biodiesel. The animals were exposed to pure diesel, pure biodiesel, B5, B20 and B100 at concentrations of 0.01 and 0.1 mL/L for two and seven days. After the exposure periods, liver and gills were removed for analysis of EROD, GST, SOD, CAT, GPx and MDA. For *O. niloticus,* B5 was the compound that most affected the activity of the enzymes and increased lipid peroxidation, and B20 blend was less harmful, since it changed only the catalase activity and EROD. For *P. anisitsi*, B5 and B20 blends changed most of the enzymes tested, and in some cases induced a higher enzyme activity than the diesel. However, the antioxidant system of the armored catfish was more effective in counteract reactive oxygen species, since they presented only a small lipid peroxidation in gills generated by exposure to B20 and B100. Taking into account the fish species, exposure period and concentrations tested, biodiesel from animal tallow and its blends with diesel oil showed cause oxidative stress and enzymatic changes in both species of fish, as much as pure diesel. Therefore, even being a more biodegradable fuel that emits less greenhouse gases, the results of this study showed that biodiesel and its blends also present hazards to aquatic biota.

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