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# **Bioaccumulation of Polybrominated Diphenyl Ethers (Pbdes), Oxidative Stress Biomarker Response and Histopathological Alterations in *Malapterurus electricus* (Gmelin, 1789) From Lekki Lagoon, Lagos, Nigeria**

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### **Abstract**

Poly-brominated Di-phenyl Ethers (PBDEs) are important chemical flame retardants, added to many consumer products to reduce the spread of fire. This study was aimed at assessing the bio-accumulation of poly-brominated diphenyl ethers (PBDEs), oxidative stress, and histopathological alterations in *Malapterurus electricus* from Epe Lagoon, Lagos, Nigeria. Water samples were collected from three different stations of the lagoon and the physicochemical parameters were analyzed using Horiba. Also, fish specimens of *Malapterurus electricus* were randomly selected from vendors at the Epe Lagoon, Lagos Nigeria. These specimens were then dissected to remove intestine, liver and parasite for examination. The excised liver, intestine and parasite (*Electrotaenia malopteruri*) were then taken to the laboratory to analyze for bioaccumulation of PBDEs, oxidative stress, and histopathological assessment. Results showed that the physico-chemical parameters of water body had their mean values either below or within established permissible limits. BDE-183 had the highest concentration accumulated in the liver meanwhile BDE-209 congener was not detected at all across the intestine, liver and parasite. The oxidative stress response parameters, GPx (glutathione peroxidase) was highest for both intestine and liver, GPx, and SOD (superoxide dismutase) were higher in the uninfected fish than the infected one. Histopathological findings in the uninfected fish showed normal villi structure, normal mucosa, sub-mucosa, and muscularis while the infected fish showed a mild increase in the connective tissue of the sub-mucosa and a focal area of loss of villous structure. The results reflect the biological effects of PBDEs pollution on the aquatic organisms and in combination with oxidative stress markers and histopathology of the guts; the endangered state of the Epe lagoon was unveiled.

### **Keywords**

- [Organic pollutants](#)
- [food chain](#)
- [bioaccumulation](#)
- [free radicals](#)
- [toxicity](#)

- [histopathology](#)
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