Acetylcholinesterase Activity in *Cyprinus carpio* Exposed to Insecticides in Rice Field

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The use indiscriminate of products to control agriculture pests results in environmental pollution and toxicity risk to non target organisms like fish. Thus, the objective of this study was evaluate changes in the activity of the enzyme acetylcholinesterase (AChE) in brain and muscle of common carp average weight of 20±1g and length 10±1cm exposed for 7, 30 and 90 days to 3.6µg/L of carbofuran and 0.65µg/L of fipronil insecticides in rice field. The results were analyzed by *t*-test, comparing treatment with control, (n=30) (P<0.05). The AChE activity in brain decreased at 7 (treatment 0.026±0.03/control 0.059±0.01), 30 (treatment 0.038±0.005/control 0.059±0.01) and, 90 days (treatment 0.024±0.003/control 0.059±0.007), such as in muscle at 7 (treatment 0.023±0.002/control 0.046±0.004), 30 (treatment 0.028±0.006/control 0.042±0.01) and, 90 days (treatment 0.024±0.003/control 0.059±0.007), after exposure to carbofuran. Already, in fish exposed to fipronil the AChE activity increased in brain and muscle after all experimental periods. In brain at 7 (treatment 0.073±0.03/control 0.059±0.01), 30 (treatment 0.098±0.01/control 0.059±0.01) and 90 days (treatment 0.091±0.004/control 0.071±0.009), as well in muscle after 7 (treatment 0.050±0.002/control 0.0369±0.004), 30 (treatment 0.060±0.003/control 0.042±0.01) and, 90 days (treatment 0.083±0.005/control 0.059±0.007). Considering the results obtained in muscle and brain of carp (*Cyprinus carpio*) exposed for 7, 30 and 90 days to carbofuran (Furadan®) and fipronil (Standak®) in rice fields, can conclude that insecticides altered AChE activity, causing disorder in the cholinergic system. Since changes in AChE activity are indicator of pesticide toxicity.

Word Keys: insecticide, AChE, carp.
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