

## Short Communication

# The importance of spider diversity in agroecosystems and the effect of pesticides

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Several studies show that spiders represent the largest biomass of predatory arthropods in different agroecosystems, which added to their habits increase their potential as the main consumer of certain pest species [1-4]. Their constant and abundant presence during all phases of the development of a crop allows them to act as effective natural enemies of phytophagous insects [3-9], due to the ability to colonize different agroecosystems [8,10,11]. In addition to being indicators of the quality of the environment in agricultural fields [12,13], they constitute the dominant component of the assembly of generalist predators [14], which includes not only adult insects, but also eggs and larvae (Lepidoptera and Coleoptera) [1,10,15,16]. Studies aimed at obtaining information on spiders in agroecosystems, as pest controllers, have increased, demonstrating their potential to be used as biological control agents in Integrated Pest Management (IPM) [2,3,9,17,18,19,20-23].

But the use of pesticides (insecticides, herbicides and fungicides), generate a decrease in the biodiversity of spiders, producing effects on ambulatory speed and preys that may be exposed to residues that would be affecting mortality of spiders [24-29]. Therefore, their populations decrease after the application of these, causing a combination of effects that include death directly or an indirect lethal action (changes in physiological behavior, constructive behavior), migration and sublethal effects such as the decrease in reproductive capacities and predators or impacts on food quality and supplies, being quantifiable in the case of weavers, being able to provide information on the xenobiotic [24,30,31]. These chemicals can affect the behavior of nerve structures and behavior, observable in the structures of the spider silk [32]. Although sublethal effects of pesticides have received less attention than the lethal effects, they are relevant from an ecological point of

view, since reducing the performance of populations can create risk for the conservation of biodiversity of spiders.

Changing some practices in agro-ecosystems, would minimize the negative impact on the diversity of spiders, considering them as reservoirs of native species and biological corridors between natural environments. In this way, the knowledge of the spider community can be used to evaluate the impact that agroecosystems produce in native biological communities and become new information resources for the environmental certification of agricultural practices [33], reducing farmers the indiscriminate use of pesticides and improving their agricultural practices.

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