



# BEYOND PESTICIDES

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Ms. Michelle Arsenault  
National Organic Standards Board  
USDA-AMS-NOP  
1400 Independence Ave. SW.,  
Room 2648-S, Mail Stop 0268  
Washington, DC 20250-0268

## **Re. CS: Polyoxin-D Zinc Salt**

These comments to the National Organic Standards Board (NOSB) on its Spring 2018 agenda are submitted on behalf of Beyond Pesticides. Founded in 1981 as a national, grassroots, membership organization that represents community-based organizations and a range of people seeking to bridge the interests of consumers, farmers and farmworkers, Beyond Pesticides advances improved protections from pesticides and alternative pest management strategies that reduce or eliminate a reliance on pesticides. Our membership and network span the 50 states and the world.

Beyond Pesticides opposes the petition for polyoxin D zinc salt (PDZ) as a fungicide. PDZ does not meet any of the OFPA criteria—for environmental and health impacts, compatibility with organic systems, or essentiality.

### **1. Polyoxin D zinc salt has impacts on beneficial organisms and may cause chromosomal mutations in mammals.**

The mode of action of PDZ is inhibition of the enzyme chitin synthetase, which stops the growth of the target fungi. However, plant pathogenic fungi are not the only fungi in an organic system. The soil ecosystem depends on fungi for breaking down organic matter and supplying nutrients to plants. A broad spectrum fungicide thus attacks the very basis of the organic agroecosystem. It also endangers some biocontrol organisms.

Kaken, the petitioner, depends on two claims to support its statement that PDZ is nontoxic to soil fungi. First, it claims that PDZ is not toxic, but is fungistatic. Second, it claims that the fast rate of degradation means that PDZ is not present in the soil for long. Relative to the first claim, a fungistatic agent can be effectively toxic to a fungus in a competitive environment, especially one that might contain organisms that consume fungi. This is particularly true when the fungistatic agent inhibits the production of chitin, which protects fungi.

Second, the argument that PDZ degrades quickly focuses on the degradation in water (half-lives, depending on pH, of 0.4-1.6 days). However, the relevant degradation is in soil, where the half-life is 15.9 to 59.2 days. Since PDZ may be applied 6 times during the growing season –say, once every 30 days—it may accumulate in the soil, thus providing a constant exposure to soil fungi.

In addition, research reported in the Technical Report (TR) showed that PDZ inhibits the same target enzyme in cockroaches. Thus, we should assume until shown otherwise that it would inhibit chitin production in other insects, thus preventing the transformation from larvae to adults in lady beetles, for example. The petition reported on honeybee studies that were conducted on adults –oral and dermal, but not on larvae and pupae. Only acute (LD50) studies are reported, but EPA found PDZ “toxic to honeybees.” We know from much experience that even non-lethal doses of pesticides can have impacts on bee colonies leading to colony collapse.

In addition, EPA noted moderate toxicity to aquatic species (freshwater invertebrates and rainbow trout) was observed in test results submitted by the registrant.<sup>1</sup>

Furthermore, EPA found a study (MRID 48653314) to be acceptable that demonstrated highly significant increases in chromosomal aberrations in hamster cells treated with PDZ.<sup>2</sup>

## **2. Polyoxin D zinc salt is incompatible with a system of organic and sustainable agriculture.**

PDZ is an unnecessary (see below) synthetic input. It causes nontarget effects on beneficial organisms in the organic system. PDZ epitomizes the kind of input that is welcomed in integrated pest management (IPM) systems, but is incompatible with organic production. PDZ is welcomed in IPM because it is less toxic than many conventional fungicides and provides another “tool” in the IPM toolbox. It allows growers to cycle through more different chemicals, thus reducing the development and spread of resistance in pathogenic fungi. These are seen as very positive characteristics in systems that rely on chemical inputs for fertility and plant health. However, organic systems rely on the interactions of organisms in the agroecosystem to provide those things, and inputs must not endanger the web of relationships in that system.

## **3. Polyoxin D zinc salt is not essential.**

As is pointed out in the TR, there are many alternatives to using PDZ, including “crop rotation, crop nutrient management practices, sanitation to remove disease vectors, selection of resistant species and varieties (where applicable) beneficial antagonistic bacteria, monitoring”—all important, but basic, organic practices.

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<sup>1</sup> Ecological Risk Assessment –p. 4 at [https://www3.epa.gov/pesticides/chem\\_search/reg\\_actions/registration/related\\_PC-230000\\_1-Jul-03.pdf](https://www3.epa.gov/pesticides/chem_search/reg_actions/registration/related_PC-230000_1-Jul-03.pdf).

<sup>2</sup> EPA memo dated May 11, 2012, from Manying Xue to Colin Walsh. Science review of product chemistry, residue chemistry, non-target organism and toxicity data in support of label amendment.

Thus we urge the NOSB to reject the petition of polyoxin D zinc.

Thank you for your consideration of these comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Terry Shistar". The signature is written in a cursive, flowing style.

Terry Shistar, Ph.D.  
Board of Directors