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Hazard Assessment of Alternatives to Dicofol

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ABSTRACT

Dicofol was listed by International POPs Elimination Network (IPEN) as requiring immediate and urgent consideration and thus was considered as a new candidate by Persistent Organic Pollutant Review Committee (POPRC) as a possible persistent organic pollutant (POP). Dicofol is structurally similar to DDT. It is persistent in food and water, highly toxic to aquatic life and causes egg-shell thinning in some bird species. High concern, due to the lack of dicofol measurements in the Arctic, proving long range transport and bioaccumulation in wild life species, supports further impact assessment of this product. Under Stockholm Convention, substances identified as POPs are regulated with the objective to protect the environment and the human health. According to this objective, the search of environmental and healthy alternatives is helpful. This paper discusses the use of three groups of chemicals currently applied as alternatives to dicofol. An exhaustive review of the synthesis of dicofol, starting from DDT, and compared to possible substitutes is presented: 1) active principle with fluoralkenyl are proposed as an environmental and healthy alternative to dicofol, 2) inhibitor agents of mitochondrial electron transport as chlorfenapyr, hydramethylnon and pyridaben and 3) pesticides commonly applied in agricultural practices as oxythioquinox, fenbutatin-oxide and formetanate hydrochloride.

KEYWORDS

Dicofol, POPs, Chemical Structure, Effects, Alternatives

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