

具有除草活性的 $\alpha$ -氧代磷酸衍生物研究进展

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**摘要** 简要的总结了十三个系列的 $\alpha$ -氧代磷酸衍生物的合成和生物活性的研究进展。为了获得具有较高除草活性及商品化潜力的新型磷酸酯,尝试采用生物合理设计的方法设计新型的丙酮酸脱氢酶系抑制剂,通过在合成、生物测定、机理及生物化学研究的基础上进行构效关系及结构优化的研究,发现 $\alpha$ -(取代苯氧乙酰氧基)烷基磷酸酯为一类兼具有良好除草活性和植调活性的先导体,研究证明该类化合物为丙酮酸脱氢酶系的强抑制剂。

**关键词** [生物活性](#) [丙酮酸P](#) [脱氢酶](#) [抑制剂](#) [植物生长调节剂](#) [氧代磷酸衍生物](#) [除草剂](#) [磷酸酯类](#)

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## Progresses in research of $\alpha$ -oxophosphonic acid derivatives with herbicidal activity

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**Abstract** Progresses in research of  $\alpha$ -Oxophosphonic acid derivatives, including the synthesis and biological activities of thirteen series compounds are summarized. In order to obtain higher herbicidally active new phosphonate derivative with commercial potential. One approach to design a inhibitor of pyruvate dehydrogenase with a novel structure by using biochemical reasoning was attempted. The study of structure- activity relationship and then optimizing the structure by chemical modification were carried out on the basis of the study of synthesis, mechanism, biochemistry and biological activities test.  $\alpha$ - (Substituted phenoxy acetoxy) alkyl phosphonates with good herbicidal activities and plant growth regulating activities as lead compound have been founded and demonstrated as a kind of inhibitors of pyruvate dehydrogenase complex.

**Key words** [BIOLOGICAL ACTIVITY](#) [OXOPROPENOIC ACID P](#) [DEHYDROGENASE](#) [INHIBITOR](#) [PLANT GROWTH REGULATORS](#) [HERBICIDES](#) [PHOSPHONIC ACID ESTER](#)

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