



## Improved synthetic process for the synthesis of 2-(4-chlorophenyl)-2-hydroxy-N-(3-methoxy-4-(prop-2-yn-1-yloxy)phenethyl)acetamide, a key intermediate for the synthesis of Mandipropamid.

### **INTRODUCTION: Name of Agrochemical: Mandipropamid Category: Fungicide**

Mandipropamid is the class of [mandelic acid](#) amides and a [fungicide](#) from the family of CAA fungicides (carboxamides). Mandipropamid is an inhibitor of cellulose synthase and is effective against downy mildew and Phytophthora infestans. Mandipropamid is a very effective active ingredient: the EC 80 against Phytophthora infestans is  $0.1 \text{ mg l}^{-1}$ , that against [Plasmopara viticola](#) is  $1.2 \text{ mg l}^{-1}$

### **CHALLENGE/APPLICATION DOMAIN:**

- ✓ None of the toxic Cyanide sources like HCN, KCN and the expensive Pd or Bromine sources were employed in this synthetic process.
- ✓ The amide coupling was achieved using a relatively easily accessible coupling reagent at room temperature to deliver an intermediate for mandipropamid.
- ✓ In our quest to enhance the efficiency and practicality of this reaction, we've uncovered a valuable process; this newly devised process offers a straightforward and achievable alternative, boasting advantages such as low cost, high yield, and suitability for large-scale industrial production.

**SCIENTIFIC MERIT:** The process provides a mild, short (Four-step), hazardous, reagent-free strategy for synthesizing the key intermediate from Vanillin for Mandipropamid.

**OPPORTUNITY:** Competing technology is not available at present, and Pharma and the fine chemical industry can employ this cost-effective IICB- process for tilorone, an antiviral drug.

**STAGE OF TECHNOLOGY DEVELOPMENT: TRL 4: Ready for transfer**

### **REFERENCES/ PATENTS:**

**Patent Number: IN 202311081168 date 29 Nov 2023**

**PROJECT INVESTIGATORS** Indubhusan Deb, Imtiaj Mondal, Koushik Naskar and Shantonu Roy

**FUNDING:** CSIR (HCP-049)

**MARKET SIZE: Total import value in India: \$ 9,104,609**

**Collaborating Institute/Company if any (pls indicate if a separate MoU/agreement is in place.):**  
None.