FORMULATION AND EVALUATION OF CELULOSE-BASED CONTROLLED PESTICIDES RELEASE SYSTEMS.

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INTRODUCTION

The **main objective** of our research is **to design, prepare and characterize suitable materials for controlled release system to use in agri- and horti-culture.** This approach assures a decreased pesticides mobility and leaching into the groundwater and the soil.

- In our experiments we studied the preparation of cellulose films produced by casting of microcrystalline cellulose solution in ionic liquid and its surface modification by specific "*click*" reaction.

Microcrystalline cellulose (MCC):

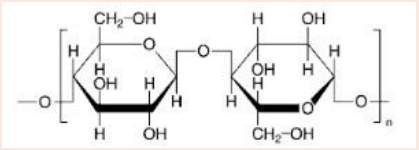
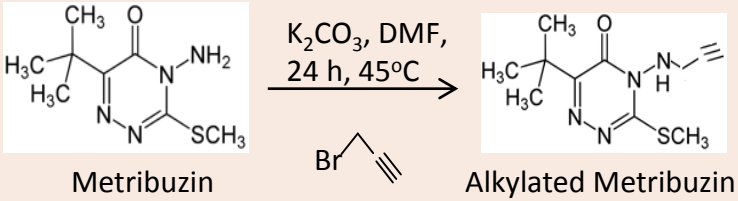


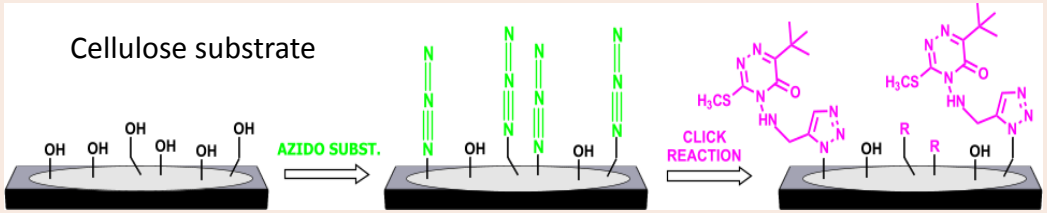
Fig. 1. Chemical structure of cellulose

Preparation of Pg-MET:



Metribuzin — Alkylated Metribuzin

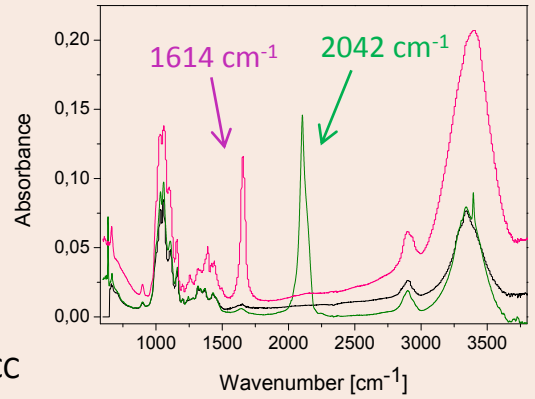
Click reaction: MET-click-MCC:



Representative scheme of click reaction.

- OH groups substituted by NaN_3
- Copper (I)-catalyzed 1,2,3-triazole forming reaction (click reaction) between cellulose-azides and alkyne modified metribuzin

RESULTS



FTIR Spectra:
- MCC,
- MCC-N_3,
- MET-click-MCC

CONCLUSION

- Preparation of cellulose substrate
- Modification of substrate by specific "click" reaction with selected herbicide.
- Analysis of the prepared material which has shown that click reaction has taken place successfully.