



# **Modification of cellulose films with potential use in agriculture**

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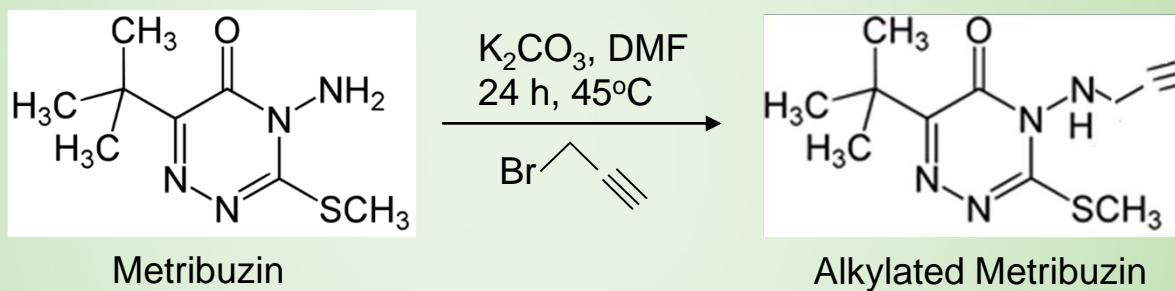
# Goal



- Preparation of materials which should help to increase the level of environmental protection through the mechanism of release of plant protective substances from a surface of biodegradable matrix, its application in agri- or horticulture
- Reducing the mobility of harmful compounds in soil and thus to decrease the toxicity of commonly used pesticides.



## Preparation of triazine selective herbicide - metribuzin

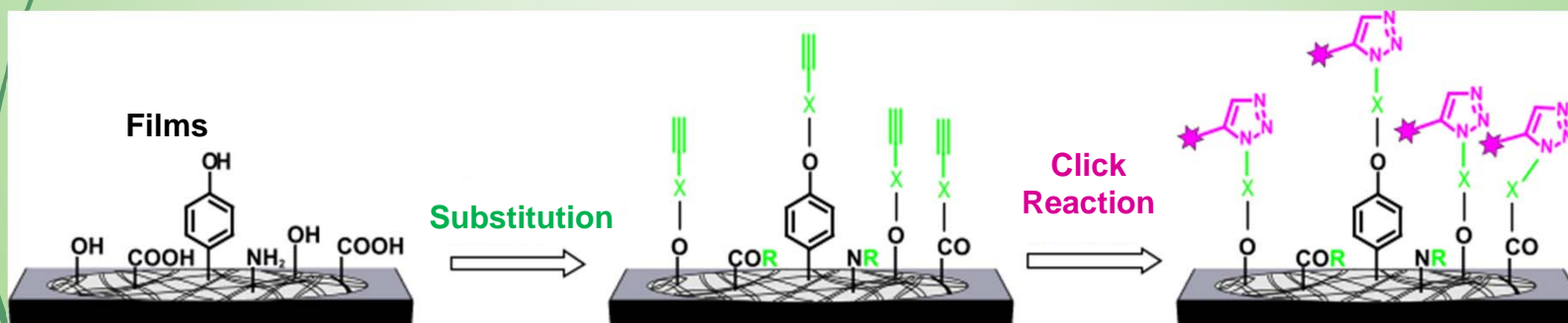




## Preparation of Matrix and Modification

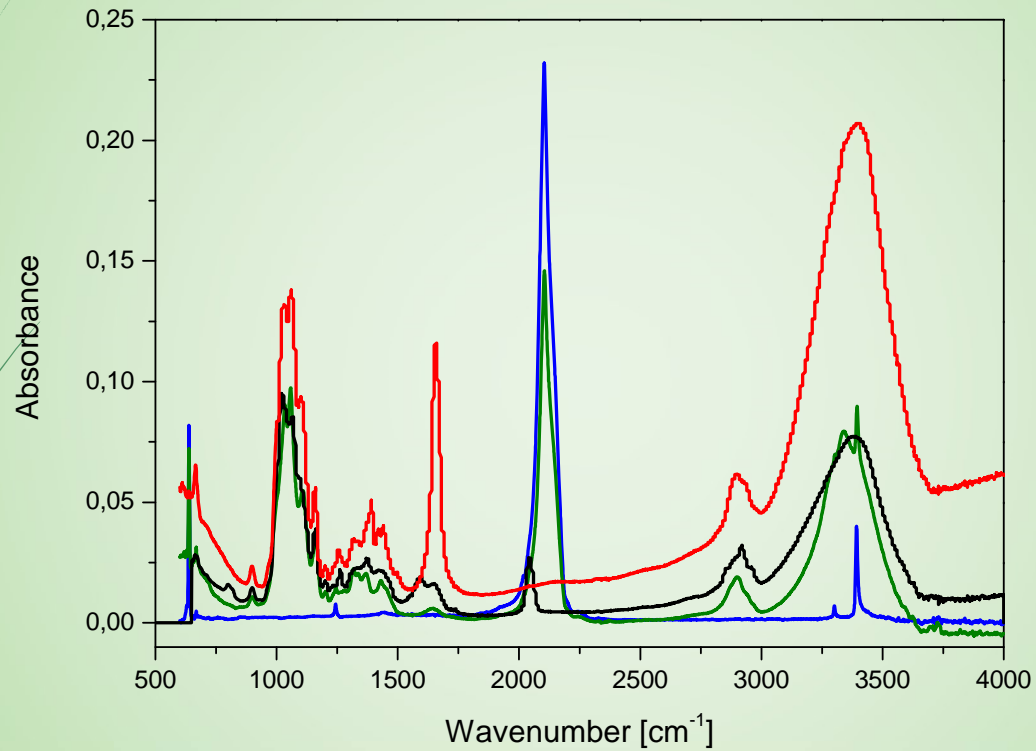
Dissolution of 3% cellulose in  
1-Butyl-3-methylimidazolium chloride, [BMIM][Cl]  
Films – by casting into methanol

1. Tosylation of cellulose by tosyl chloride to improve the activity of OH groups and subsequently substitution by  $\text{NaN}_3$
2. Copper (I)-catalyzed 1,2,3-triazole forming reaction (click reaction) between cellulose-azides and alkyne modified metribuzin





# Characterization by FT-IR



NaN<sub>3</sub>, blend: cellulose+NaN<sub>3</sub>, metribuzin  
modified cellulose



## Further Study

- Processes during releasing by enzymatic degradation.
- Effectivity of released system



## **Acknowledgement:**

To my co-workers

**Thank you for your attention**

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