

# BIOMASS ACTIVATED CARBON (BAC) FOR TOXIC DYES REMOVAL : TOWARDS A SUSTAINABLE ENVIRONMENT

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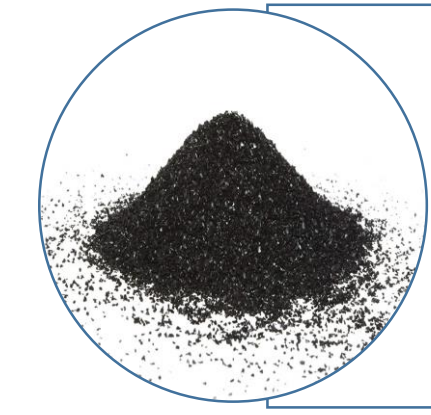


## INTRODUCTION



### Agricultural Waste

- 1.2 million ton/year
- Eg: Animal manure & crop stalks



### Adsorption

- Low operating cost
- High decolorization efficiency
- No toxic by-product
- Eg: Adsorbent : Activated carbon



### Adsorbent from Agro-waste

- Low cost, Eco-Friendly, High Regeneration %
- Eg: Banana peel, Orange peel, Garlic peel, Sugarcane Bagasse, Coconut Shell
- ✓ Abundantly available ( 20 million ton)
- ✓ Contain Cellulose
- ✓ No harmful waste

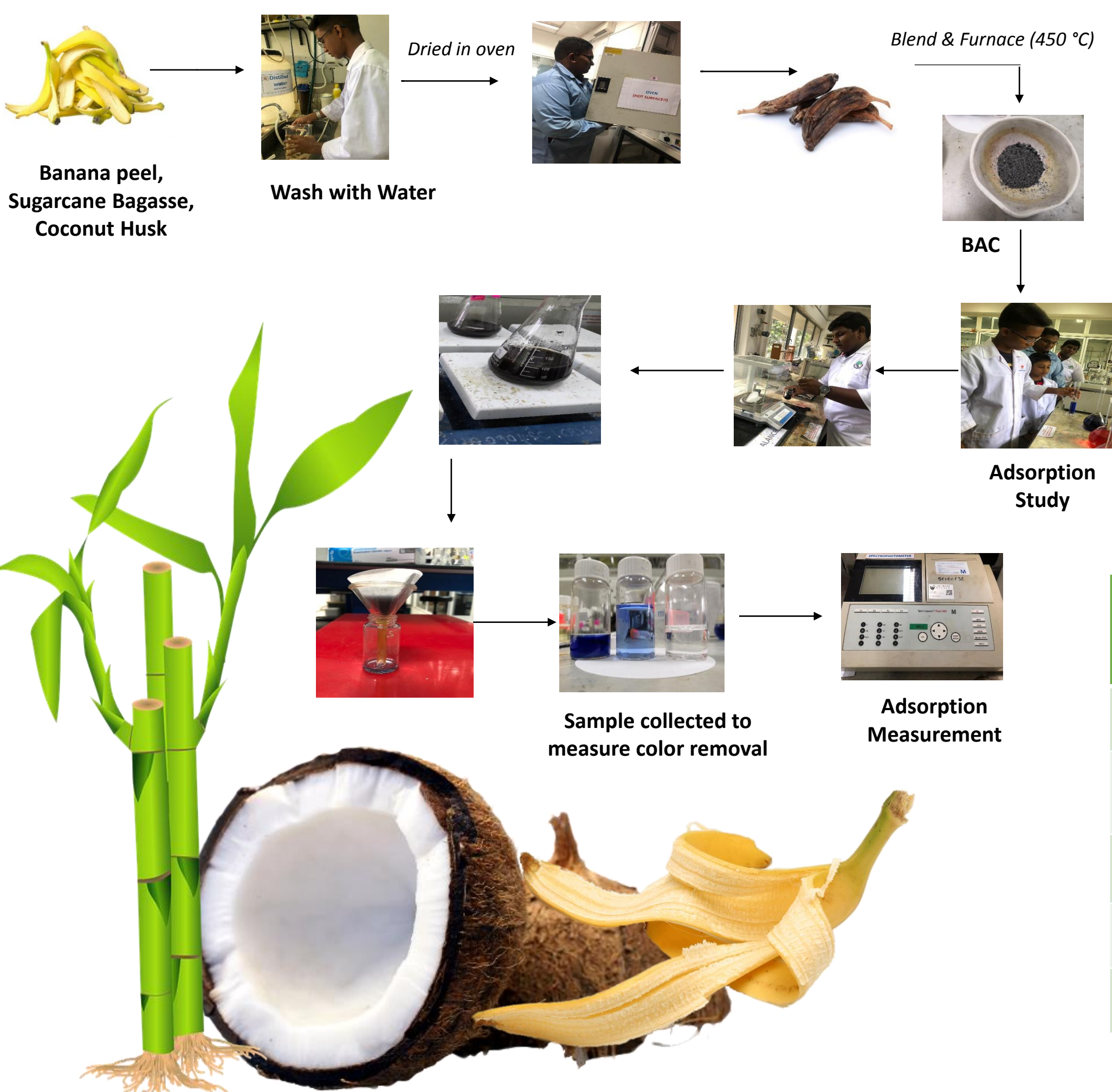
## OBJECTIVES

- ✓ To prepare biomass activated carbon (BAC) from three different waste namely; Sugarcane bagasse, Coconut Husk and banana peel
- ✓ To investigate the potential of newly developed BAC to remove of different types of dye

## MATERIALS

- Sugarcane Bagasse
- Remazol Brilliant Blue R dye
- Banana Peel
- Coconut Husk
- Reactive Red
- Methyl Orange

## METHODOLOGY



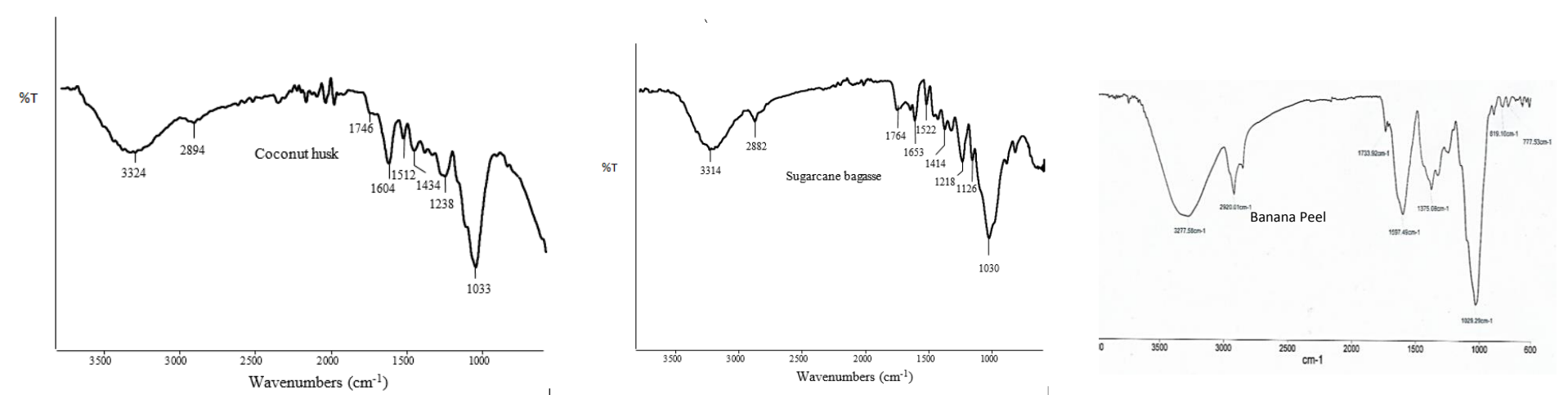
## RESULTS AND DISCUSSIONS

### CHARACTERIZATION OF ADSORBENT

#### SEM Analysis

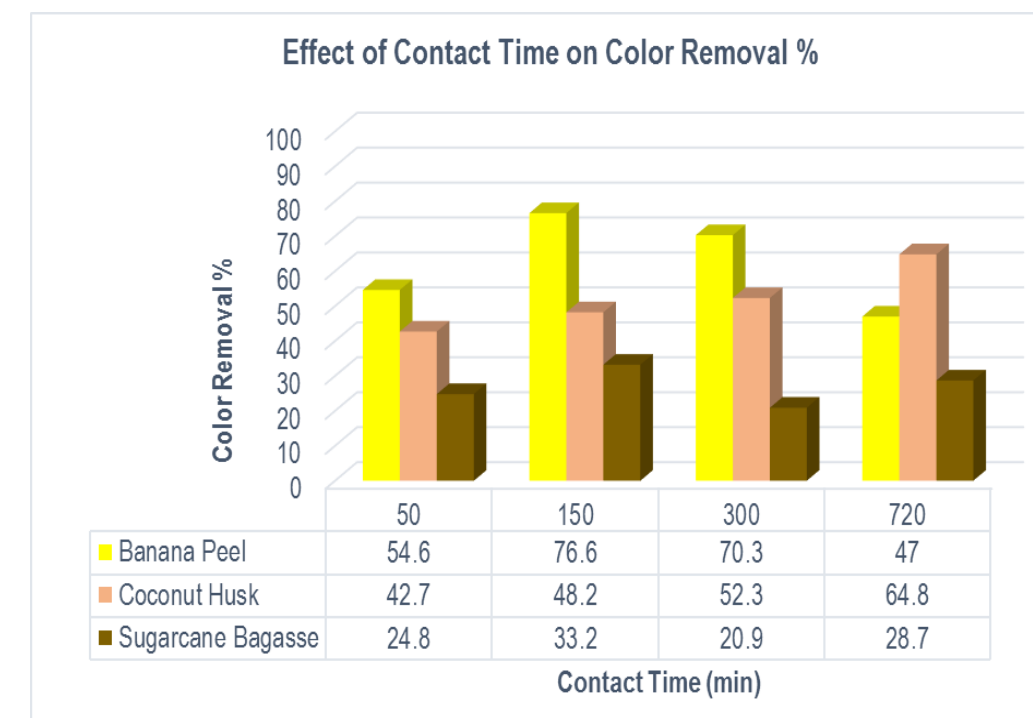


#### FTIR Analysis

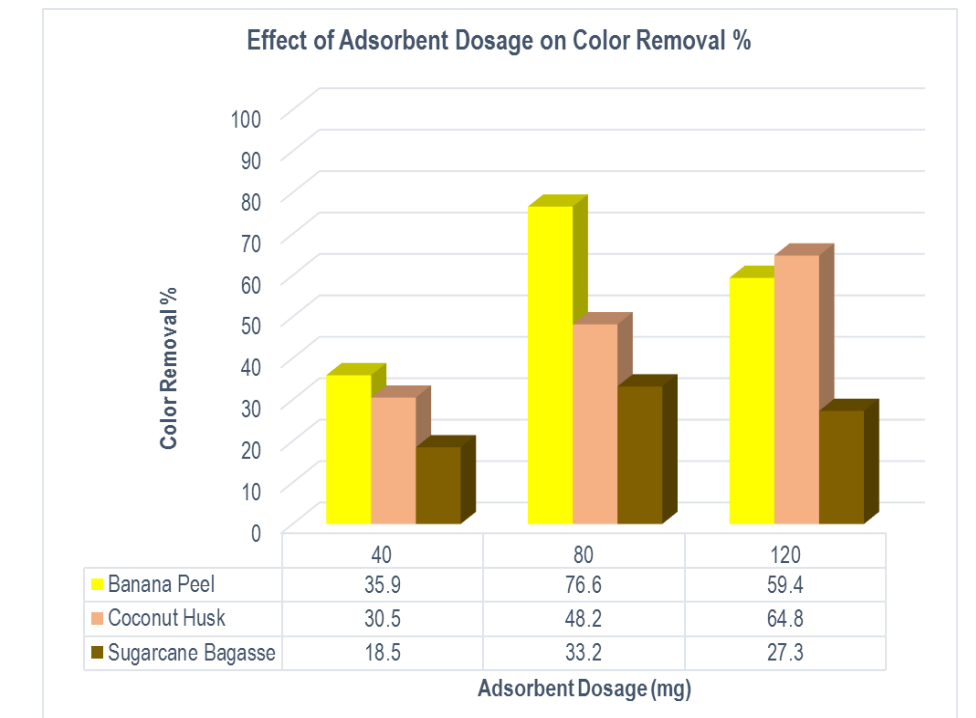


### ADSORPTION STUDY

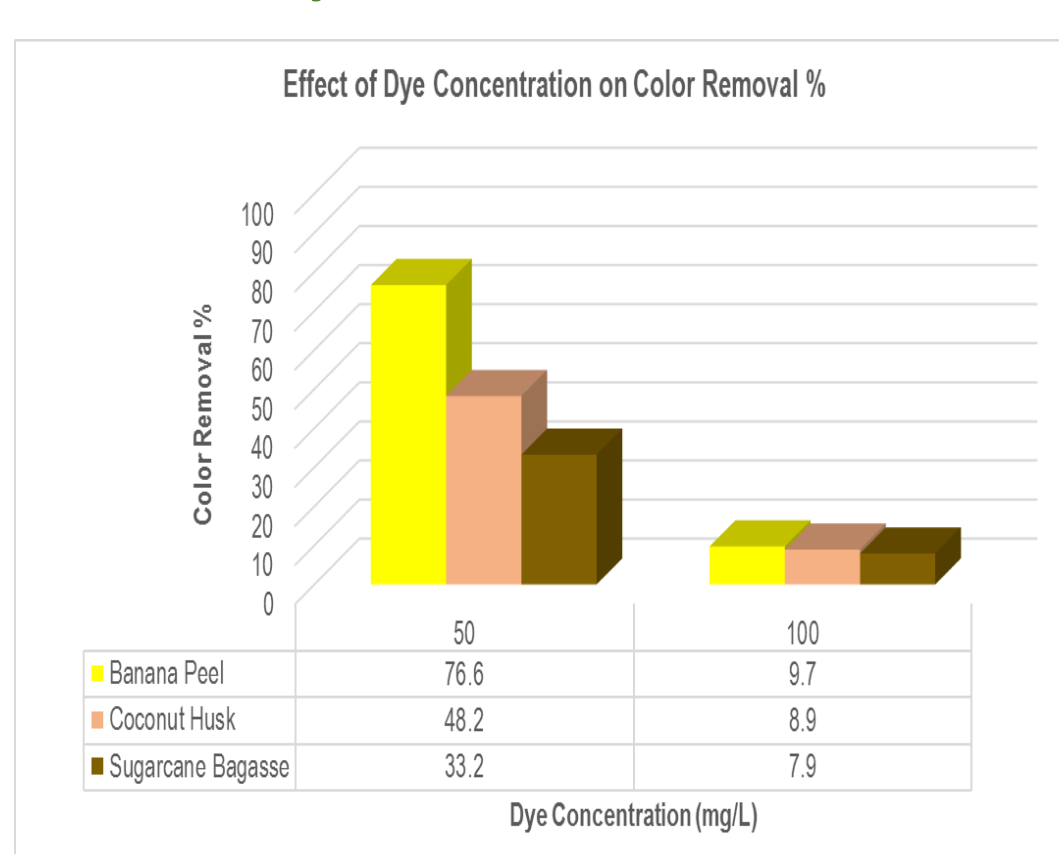
#### Effect of Contact time



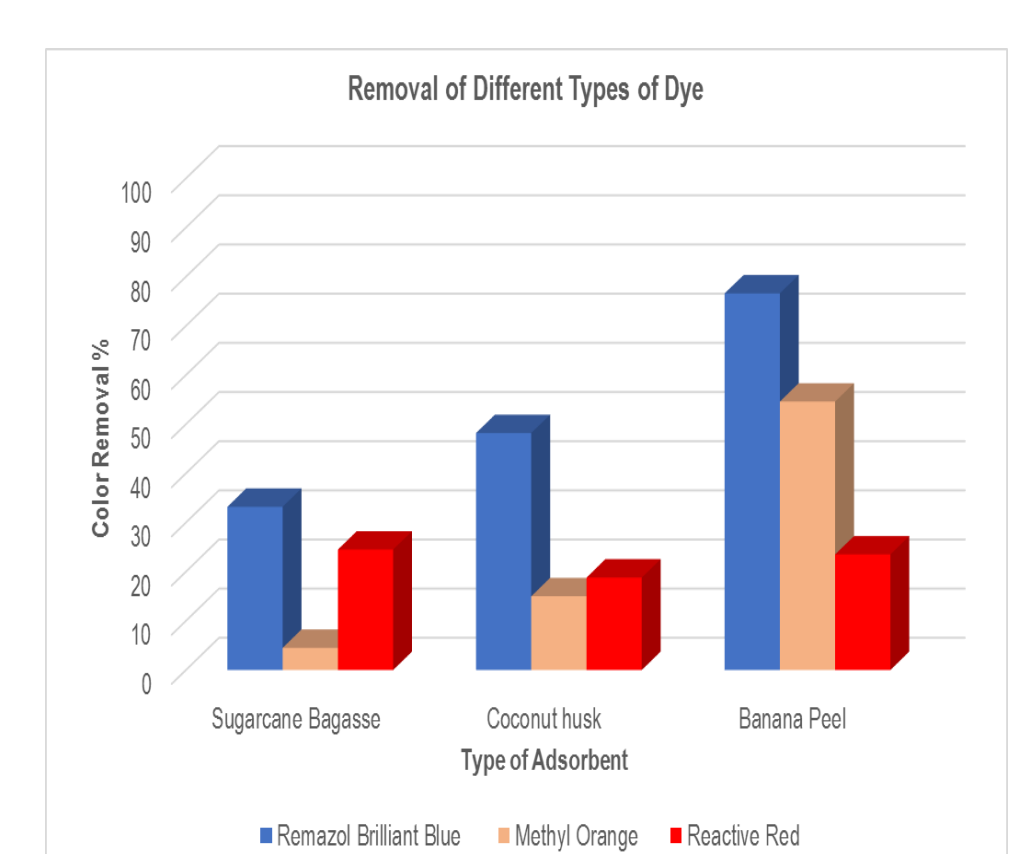
#### Effect of Adsorbent Dosage



#### Effect of Dye Concentration

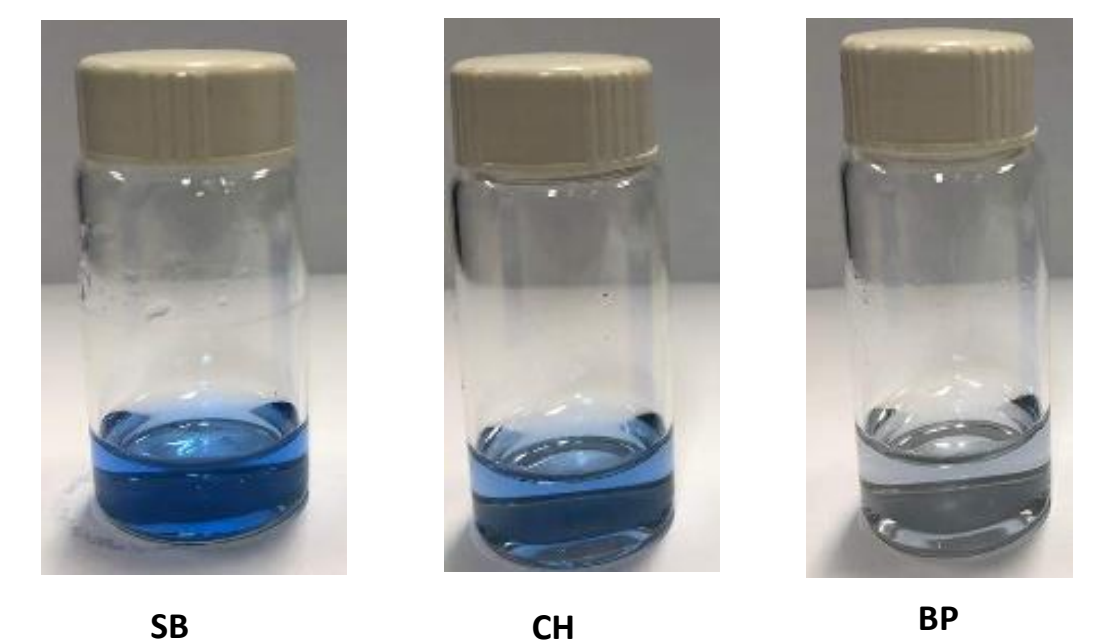
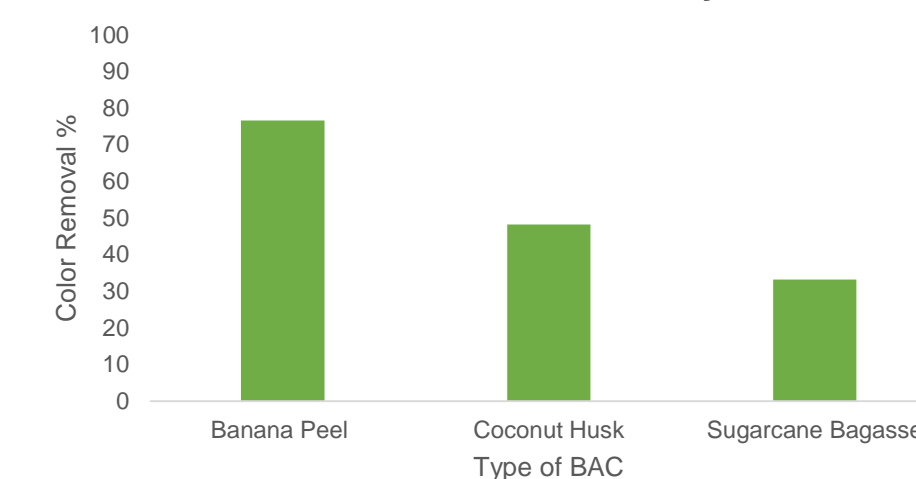


#### Types of Dye



### COMPARISON OF BAC'S

#### Color Removal Efficiency



## CONCLUSION

	SUGARCANE BAGASSE	COCONUT HUSK	BANANA PEEL
Contact Time (min)	150	150	150
Absorbent Dosage (mg)	80	80	80
Dye concentration(mg/L)	50	50	50
Dye Type	RBB	RBB	RBB
Color Removal %	33.2	48.2	76.6

