SOLAR LIGHT DRIVEN HYBRID PYRITE- EGGSHELL FOR REACTIVE RED 120 DYE DEGRADATION

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Product Background

- Dyes are one of the most hazardous chemical compound classes found in industrial effluents and need to be treated.
- Reactive dyes represent an important portion of the commercial synthetic dyes, which have negative effects on human and also to aquatic life which can be treated by using photocatalytic reaction and by using adsorption.
- Wastewater that contain synthetic dye can be treated by using photocatalytic reaction and adsorption.
- Pyrite was used as photocatalyst and eggshell as adsorbent due to their low cost and environmental friendly.

Novelty/ Originality/ Inventiveness

- Pyrite and eggshell can be collected from natural resources and waste materials respectively.
- By combining pyrite-eggshell, the performance of Reactive Red 120 dye degradation could be achieved up to 75%.

Marketability/Commercialization

Potential Clients

- Batik Industry
- Cosmetic Industry
- Textile Industry
- Leather Industry

Benefits/Usefulness/ Applicability

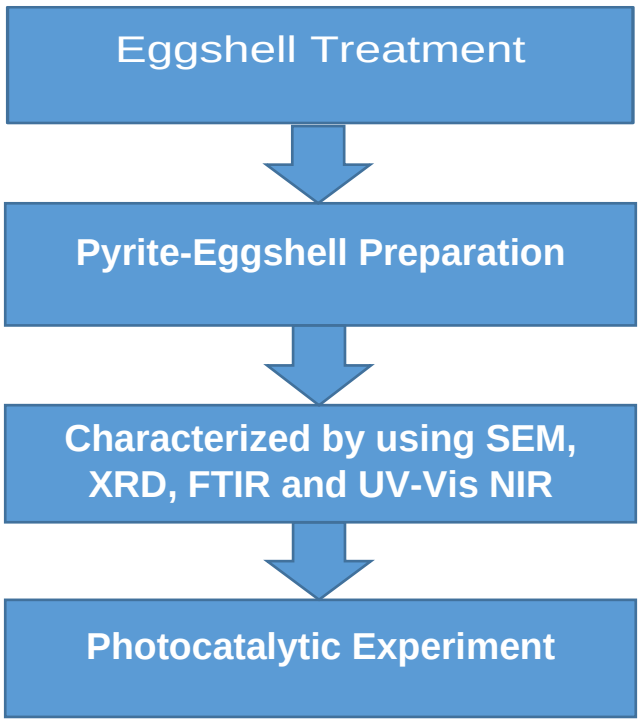
- Environmental pollution regarding to industrial effluent that contain synthetic dye can be reduced.
- Only simple technique are required.
- Higher percentage of dye degradation in wastewater.
- Abundant resources.
- Reduce waste production
- Low production cost.

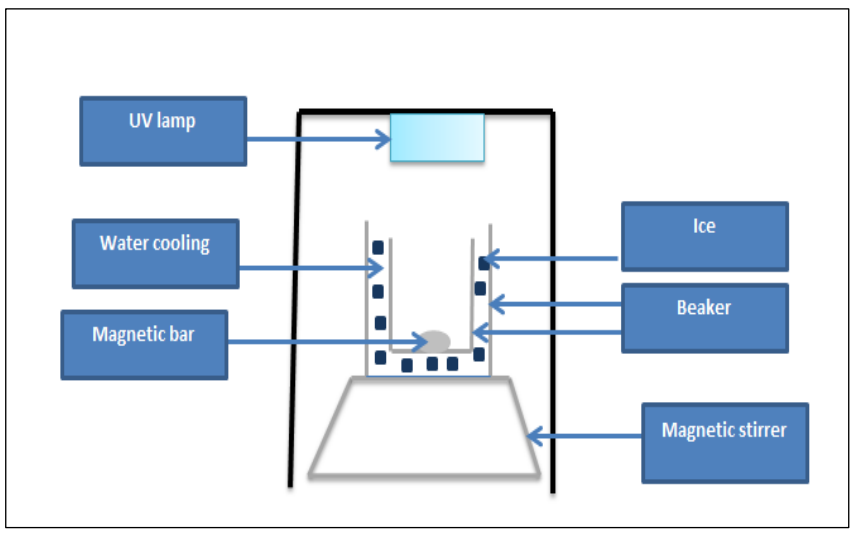
Cost Analysis

- Acetic acid was used to combine pyrite and eggshell which will only cost RM 24.80 for 1kg

Photocatalyst	Price (RM)/ kg	Adsorbent	Price (RM)/kg
Pyrite	3.24	Eggshell	0
Titanium Dioxide	8.84	Activated carbon	5.83
Zinc Oxide	55.00	Zeolites	100.00

State of the Art/ Methods





Product Image and Product Characteristics/Results