



Removal of methylene blue using a dried mango peel composite starch cryogel

Presented by
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Advisor
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Background research

Batik

Mangosteen

Mangosteen peel

Dried Mangosteen Peel (DMP)

Remove

Starch cryogel

Plankton

M1, M2, M3

Preparation of Dried Mangosteen Peel (DMP)

Weight (g)

Time (min)







A study of the drying time of ground mangosteen peel (MP) with temperature at 105°C showed weight of MP was equilibrium after 60 min.

(Temperature was fixed at 105°C followed the previous research: The efficiency of mangosteen peel for dye removal (2011). <https://doi.org/10.1088/1742-6596/3719/1/012081>.)

Time (min)	Weight (g)
0	0.250
15	0.225
30	0.225
45	0.222
60	0.218
75	0.218
90	0.218
105	0.218
120	0.218

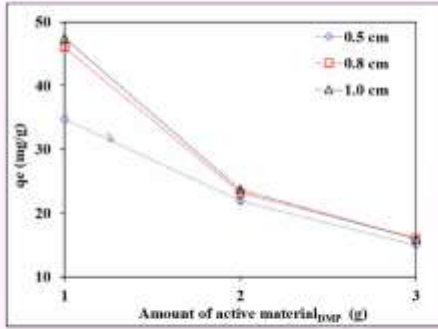
Fabrication of Cry-DMP and effect of Cry-DMP dosage

Cryogel (Cry) ratio : rice flour 62.5 g + tapioca starch 18.75 g + lime water ($\text{Ca}(\text{OH})_2$) 500 mL + DMP x g

	Cryogel after synthesis	After soak in ethanol (24h)	Dried cryogel ($T=100^\circ\text{C}$ 1 h)
blank cryogel			
DMP cryogel			

Cry-DMP was fabricated at the thickness of 0.5, 0.8, and 1.0 centimeters with the amount of DMP at 20, 12.5, and 10 g, respectively. To study the removal efficiency of MB, the amounts of all thickness Cry-DMP at 1, 2, and 3 pieces were used.

(concentration of MB and contact time were fixed at 50 mg L^{-1} and 1 h, respectively followed the previous research: The efficiency of naringin peel for dye removal (2021), <https://doi.org/10.1080/1742-6398.17191012061>.)



Amount of active material _{DMP} (g)	0.5 cm (qe mg/g)	0.8 cm (qe mg/g)	1.0 cm (qe mg/g)
1	~35	~45	~48
2	~25	~28	~30
3	~18	~20	~22

Zoom Meeting interface showing a large video feed of a participant (Korntina Phattanasamai) in the foreground. The background is a virtual room with a blue sky, clouds, a green fence, and a yellow field. Other participants are visible in smaller windows at the top.





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Charita Baskin

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