

Phytochemical Profiling, Biological Activities, and Identification of Bioactive Constituents from the Fruit Extracts of Medicinal Plant *Mallotus philippensis*, Euphorbiaceae

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Supplementary Materials

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Table S1. Botanical description of *M. philippensis*

Resources	Images	Description	References
The Whole Plant		<p><i>Native names:</i> Kamala tree, Kamala, Sidur, Rohini, Kambhal.</p> <p><i>Kingdom:</i> Plantae</p> <p><i>Family:</i> Euphorbiaceae</p> <p><i>Genus:</i> Mallotus</p> <p><i>Species:</i> <i>M. philippensis</i></p>	<p>[1]</p> <p>[2]</p> <p>[2]</p> <p>[2]</p>
Leaves		<p>Transitioning from an ovate to an elliptical configuration, the dimensions of the leaves vary between 4 and 12 cm in length and 2 to 7 cm in width, ultimately tapering to an elongated and pointed apex. Petioles, measuring 2 to 5 cm in length, display a subtle thickening at both extremities.</p>	[2]
Flowers		<p>Yellow-brown blooms appear in raceme clusters, extending up to 6 cm in length. Male and female flowers are borne on separate trees. In New South Wales, these blooms typically flourish from June to November, whereas in the Philippines, the flowering period spans from March to April.</p>	[2]
Fruits		<p>Fruits can emerge at any point throughout the year, typically around three months after the flowers have bloomed. These fruits generally form a three-lobed capsule, measuring 6 to 9 mm in width, and are coated with a reddish powder's substance. The fruit extract has antioxidant, infertility, and antibacterial potential.</p>	<p>[2]</p> <p>[3]</p>





Seeds		<p>The seeds are rich in protein, comprising 18.5–20%, and contain a significant amount of fat, ranging from 23.7% to 25.8%.</p> <p>Each of the three sections of the capsule contains a single tiny, black, rounded seed, with seeds measuring 2 to 3 mm in diameter. For successful germination, it is recommended to use fresh seeds. This tree exhibits a moderate growth rate.</p>	[4]
Powders		<p>The plant, extensively employed in Asia for its dye and medicinal properties, offers valuable resources such as timber and essential oil.</p>	[5]
Seed essential oils		<p>The seeds produce approximately 35% of fast drying oil.</p> <p>The oil serves as a stabilizing agent in cosmetic formulations and as a natural food and beverage coloring ingredient.</p>	[6] [6, 7]
Timber		<p>The timber is appropriate for making paper pulp.</p>	[7]

Table S2. The test methods and key details for potential constituents.

Constituents	Tests	Methods	References
Alkaloids	Mayer's Reagent Test	2 mL of ethanolic and dichloromethane fruit extracts were taken in test tubes, a few drops of Mayer's reagents were added, and then a cream precipitate formed.	[8]
	Wagner's Reagent Test	Again, 2 mL of crud sample was taken in the test tubes to perform Wagner's test. A few drops of Wagner's reagent were added to the sample, forming a reddish-brown precipitate.	
	Hager's Reagent Test	Furthermore, a yellow precipitate was formed, and Hager's reagent was added to the sample to perform Hager's test.	
	Shinoda Test	2 mL of <i>M. philippinesis</i> fruit extracts were added to test tubes, a few drops of concentrated hydrochloric acid were added, then a few pieces of magnesium ribbon were added to the test tube; the color was changed to red, and the performed test was positive Shinoda test.	
Flavonoids	Alkaline Reagent Test	The same few drops of 2% sodium hydroxide solution were added to the crud sample in another test tube, and the color of the extract changed to yellow. Several drops of a dilute hydrochloric acid solution were introduced, and the yellow color completely disappeared in a few seconds.	[8]
Steroids	Sulfuric acid Test	2 mL plant extract was added to test tubes, 2 µL chloroform was added into test tubes with the help of a micro pipit, then a few drops of sulfuric acid were introduced to the test tubes, and the red color ring was formed at the end.	[8]

Saponins	Foaming Test	The extracted sample was heated for 15 minutes, and then 2 mL was transferred to the test tubes. Foams were formed by shaking and left for 5 minutes, and the foams were stable.	[8]
	Keller–Kilian Test	To perform the Keller–Kilian test for the identification of cardiac glycosides, 2 mL of plant extract was taken in the test tube, a few drops of acid anhydrides were added, and then a few drops of concentrated sulfuric acid on the wall of the test tubes, that's showed bluish green color.	
	Liebermann's Test	Liebermann's test. A few drops of Pyridine, sodium nitroprusside, and sodium hydroxide, and then the color of the extract changed to a deep red color and a legal test for the identification of lactones glycosides.	
Glycosides	Kedde's Test	Furthermore, a few drops of 3,5 dinitro benzoic acid (Kedde's reagent) and sodium hydroxide were added to the extracts in the test tubes. It formed a violet color, using Kedde's test to identify lactone glycosides.	[8]
	Litmus Test	In a litmus test, a few drops of plant extract were added to the surface of blue litmus paper, showing a red color to identify phenols.	
	Ferric Chloride Test	Performed ferric chloride test, added few amounts of neutral ferric chloride into the plant extract; the color of extract changed to violet due to the formation of the complex.	
Phenols		Using Liebermann's test, 1 mL of plant extracts were added into the sodium nitrite in test tubes; then, the test tube was on a Benson	[8]

	Liebermann's Test	burner and cooled for a few minutes. A small amount of concentrated sulfuric acid was put in the test, shaking correctly, and a little UP water was introduced to the test tube, forming red and brown.	
	Litmus Test	Furthermore, the phthalein dye test was 3 mL of plant extract kept in the test tubes, and a few amounts of phthalic anhydride and a few drops of concentrated sulfuric acid were added. The test tube was kept in a water bath for some time, and a few drops of dilute sodium hydroxide were added, which formed a pink color.	
Tannins	Ferric Chloride Test	A ferric chloride test was performed to identify tannins in the plant sample; 2 mL of plant extracts were transferred to the test tubes, and a few amounts of 5% ferric chloride were added; the colour changed to dark blue. A total of 2 mL of plant extracts were kept in the test tubes, 1% gelatinous solution was added into test tubes, and a white precipitate was formed. For the third test, 2 mL of plant samples were taken in the test tubes, and a few amounts of 10% lead acetate solution were added, forming a white residue.	[9]

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