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# QUALITATIVE PHYTOCHEMICAL ANALYSIS OF *MURRAYA KOENIGII* WITH REFERENCE TO KARAMBALI VILLAGE OF GADHINGLAJ CITY

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**Abstract:**

*Murraya koenigii, commonly known as curry leaves, belongs to the family Rutaceae. Fresh leaves were collected from Karambali village in Gadhinglaj city, Kolhapur district. Extraction was carried out using ethanol, acetone, chloroform, and aqueous solvents. The extracts were subjected to qualitative phytochemical analysis to detect secondary metabolites such as carbohydrates, alkaloids, phenols, proteins, amino acids, tannins, steroids, coumarins, and flavonoids. The phytochemical screening revealed that chloroform and aqueous extracts contained the maximum number of tested phytochemicals representing major metabolites. The ethanol extract showed a moderate number of phytochemical constituents, whereas the acetone extract exhibited the least number of phytochemicals, indicating comparatively lower extraction efficiency.*

**Keywords:** *Murraya koenigii, Ethanol, Acetone, ChloroformaAnd Aqueous Solvents.*

## Introduction

According to the World Health Organization medicinal plants would be the best source to obtain a variety of drugs. About 80% of individuals from developed countries used traditional medicine, which has compounds derived from medicinal plants [1]. Herbal products are suitable for treating a wide range of infections and diseases [2]. Medicinal plants are raw material for many herbal formulations and popular supplements There is a common concept among people that herbal medicine has no side effects and that being natural in origin, herbs are safe. Herbal remedies used in traditional medicine provide an interesting and still largely unexplored source for the creation and development of potentially new drugs for chemotherapy which might help to overcome the growing problem of resistance and also the toxicity of the currently available commercial antibiotics.

*Murraya koenigii* [Linn] Spreng. Commonly known as curry leaves belong to the Rutacea family. Curry leaves are small, glossy, dark green, oval to lanceolate leaflets growing in clusters on a central stream. They are pinnately compound and have a distinct aroma. It is widely appreciated for its aromatic leaves in south asian cuisine this under-utilized botanical treasure harbors a complex arsenal of bioactive compounds that remain only partially explored by modern science [3].

In this context, *Murraya koenigii*presents a unique pharmacognostic profile rich in a alkaloids, flavonoid, phenolics and essential oils each demonstrating a promising spectrum of pharmacological effects including antioxidant, antidiabetic, anticancer and neuroprotective activities [4].

**Material and Methods**

***Plant material***

leaves of *Murraya koenigii*were collected from Karambali village of Gadhinglaj city, Kolhapur district. They were cut into small pieces, shade dried and grind to powder.

***Crude extraction***

50 gm of coarse powder of *Murraya koenigii* was soaked in 500 ml of each Ethanol, Acetone, Chloroform and Aqueous solvents for 24 hrs with occasional shaking. The solvent from the total extract was filtered. It was used for the qualitative analysis of secondary metabolites.

***Identification test***

The individual extract was subjected to the qualitative phytochemical screening for the presence of some chemical constituents. Phytochemical tests such as were carried out adopting standard procedure [5, 6,7].

**Result and Discussion**

Table 1 presents the qualitative phytochemical screening of *Murraya koenigii* leaf extracts prepared using aqueous, ethanol, acetone, and chloroform solvents. The table indicates the presence (+) or absence (–) of various bioactive secondary metabolites, reflecting the influence of solvent polarity on extraction efficiency.

The qualitative phytochemical screening of *Murraya koenigii* (curry leaves) confirmed the presence of diverse bioactive secondary metabolites, emphasizing its therapeutic significance. The study revealed alkaloids, flavonoids, tannins, saponins, phenolics, steroids, proteins, amino acids, coumarins, diterpenes, and phytosterols, identified through characteristic color changes and precipitate formation during standard biochemical tests (8). Among the solvents used, aqueous and chloroform extracts exhibited the highest phytochemical diversity, showing positive reactions for 14 constituents each, indicating their effectiveness in extracting polar and non-polar compounds (9). The ethanol extract demonstrated a moderate phytochemical profile with 13 constituents, whereas the acetone extract showed fewer positive results (10), suggesting lower extraction efficiency. The abundance of flavonoids, phenolics, and tannins supports the antioxidant and antimicrobial properties of *M. koenigii*, while alkaloids and steroids contribute to its pharmacological relevance (11). These findings are consistent with previous reports and highlight the influence of solvent polarity on phytochemical extraction.

The qualitative carbohydrate analysis of *Murraya koenigii* leaf extracts revealed the presence of carbohydrates, confirmed by positive Molisch and phenol tests in all solvent extracts (12). The iodine test was positive only in the aqueous extract, indicating starch-like polysaccharides. Fehling's and Benedict's tests suggested the presence of reducing sugars, mainly in aqueous and ethanol extracts, while the negative Barfoed test indicated the absence of

monosaccharides. The extraction pattern highlights the influence of solvent polarity on carbohydrate solubility (4).

**Table 1: Phytochemical analysis of *Murraya koenigii***

| Phytochemical | Aqueous | Ethanol | Acetone | Chloroform |
|---|---|---|---|---|
| Alkaloids | | | | |
| Wagner's | + | + | - | + |
| Dragen droff | - | + | - | + |
| Hager | + | + | + | + |
| Saponin | + | - | - | + |
| Steroid | - | + | + | + |
| Tannin | + | + | + | + |
| Protein | + | - | - | + |
| Amino acid | + | - | - | + |
| Coumarin | + | + | - | + |
| Emodins | - | - | - | - |
| Flavonoid | | | | |
| Alkaline reagent | + | + | - | + |
| NH4OH test | + | - | - | - |
| Mg turning | - | - | + | - |
| Zn test | - | - | + | - |
| Anthocyanin | - | - | - | - |
| Diterpenes | - | + | + | - |
| Phytosterol | + | + | + | + |
| Carbohydrate | | | | |
| Molisch | + | + | + | + |
| Barfoed | - | - | - | - |
| Iodine | + | - | - | - |
| Fehling | + | + | - | - |
| Benedict | - | + | + | + |
| Phenol | + | + | + | + |
| Phlobatannins | - | - | - | - |
| Leucoanthocyanin | - | - | - | - |
| Chalcones | - | - | - | - |
| Anthraquinone | - | - | - | - |

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