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ASSESSMENT OF HEPATOPROTECTIVE ACTIVITY OF SEVERAL MEDICINAL PLANTS

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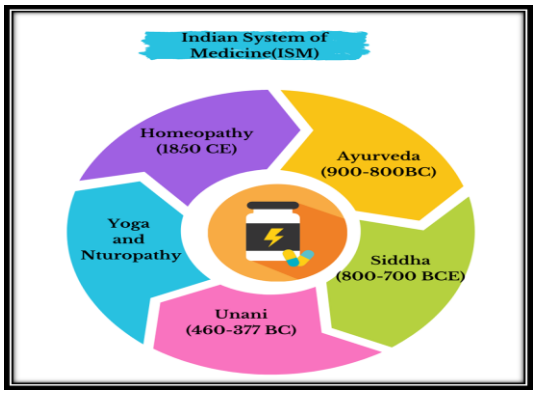
ABSTRACT
The current review comprises of a total gathering of information in the appraisal of customarily perceived hepatoprotective spices. The work was subsequently efficiently arranged and completed to satisfy the goals illustrated previously. Two plants were chosen dependent on recently announced information, like pharmacology, phytochemical construction and accessibility, and ethnomedic utilization. The clinical plants chose were first normalized to WHO models on the Ficus microcarpa and Commelina clavata. In the accompanying stage, the plants were extricated utilizing the expanding extremity solvents with the Soxhlet extraction strategy. The reason for this review was to evaluate the activity of different Ficus and Commelina clavata rough extricated cell reinforcements, hepatoprotectors and immunomodulation. Following are the significant consequences of the examination. Our discoveries show that the hepatoprotecting ability of both the Ficus microcarpa and Commelina clavata plants in Wistar pale skinned person rodents is constant and intense. Simultaneously as the previously mentioned plants can either be created exclusively or as a polyherbal detailing in a fitting portion structure, their pharmacological assessment is recommended using the suitable creature models and clinical preliminaries in human subjects. The outcomes show that the spice is now perceived to be of helpful use in the customary clinical framework. This can assist separates with restoring liver harm actuated by openness to compound or xenobiotic substances. Further exploration are as yet fundamental to research the particular component of activity.

KEYWORDS: Herbal drugs, Ficus microcarpa, Commelina clavata, Hepatoprotective.

Indian systems of medicine
India has a rich tradition of conventional medication that comprises for the most part of two sprouting therapy frameworks: Ayurveda and the Siddha clinical framework.[1] Medicinal plants have been given on through oral custom and the application strategies for specific sicknesses. Conventional medication was ultimately archived with information on helpful spices.[2]



Indian systems of medicine

Numerous conventional frameworks have minimal logical information into the recuperating impacts of plants. The thought that the vibe of plants may offer signs to their helpful abilities is established with the understanding that the mark of God is deciphered on the plant. Red squeeze and sap, for instance, are respected associated with monthly cycle and blood issues; bile and embitter in yellow blossoms; human type of explicit extremists, female ripeness, and so forth Yet, this idea every so often worked: Chelidonium majus, has yellow blossoms and a yellow latex alkaloid, and has successfully been utilized for the treatment of jaundice.[3,4]

All things considered, all clinical medicines have been inferred either as crude plants or as refined rough concentrates, blends, and so on, from plants.[5] There is expanding accentuation to the significance of therapeutic plants and traditional medical care frameworks for handling the world's wellbeing concerns. Because of this upsurge of interest, global review is expanding on plants of remedial importance. Most non-industrial countries are essential for their way of life, as a component of conventional clinical practice. Customary Indian cures were successfully polished in the contemporary day, scarcely logically approved.[6,7]

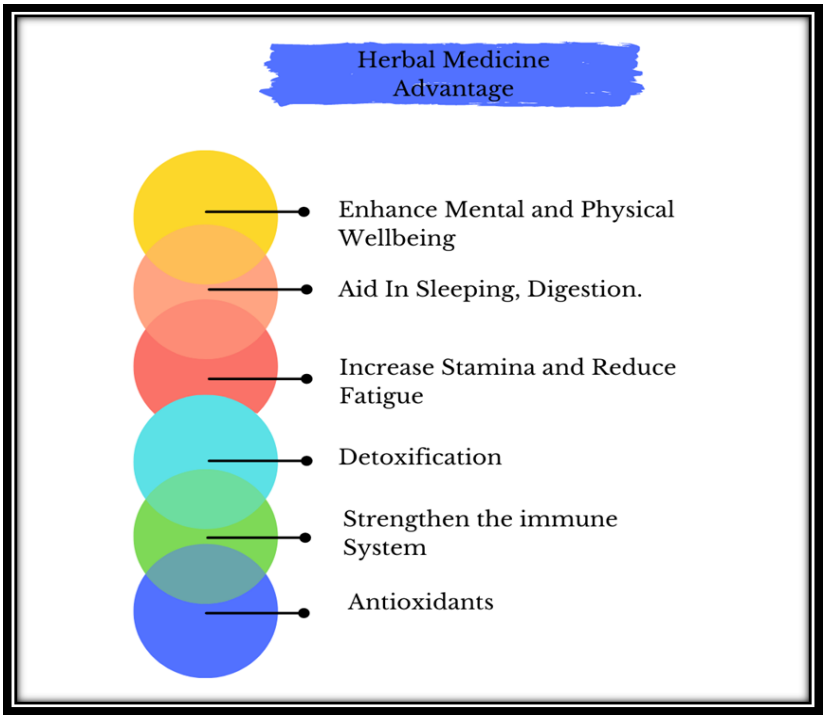


Fig. 1.1: Herbal Medicine advantage.

Hepatitis

Hepatitis is a liver condition that is described by expansion and lacking liver capacity. Dynamic or persistent hepatitis. Hepatitis. It can prompt liver disappointment and passing in outrageous circumstances. Medication incited liver harm is brought about by intense and constant hepatic infections brought about by drugs in particular.(51)[8]

More than 900 medications (see LiverTox, outer connection underneath) have been engaged with liver lesions[52,9] and the most widely recognized reason for a medication to have been ceased. The requirement for poisonousness forecast model (for example DTIs)[53][10] and medication screening tests (for example hepatocyte-like undifferentiated organism determined cells) which can recognize harmfulness ahead of schedule into a medication advancement measure are additionally significant as hepatotoxicity and therapeutic liver harm.[54][11] Chemicals produce ordinarily subclinical liver harm which just happens in unusual liver catalyst testing. Medication actuated liver harm represents 5% of all emergency clinic confirmations and half of all intense liver disappointment.(55,56)[12,13]

Treatment in liver disease

Regardless of the astounding advancement in contemporary medication, the treatment of hepatic illnesses needs protected and viable manufactured drugs. 65[14] Modern prescriptions and customary medications are the treatments open for mending from liver issues. Calming, immunomodulative, 66[15] corticoid, 67[16] L-methionate, 68[17] alpha-liquic corrosive, 69[18] inhibitors of dipeptide caspase (70)[19] and ursdeoxycholic corrosive are contemporary prescriptions. Coming up next are accessible: Modern drug (UDCA). The treatment of liver issues is supported for hydrophilic bile corrosive with potential immunomodulating capacities (71,72)[20,21] and prednisone related to azathioprine..73,74[22,23]

Plant collection

The market of the neighbourhood Ficus microcarpa and Commelina clavata's were bought. With water and purified water, the plant washed. The leaves and bark were separated, the shadows dried and smoothed, with a duration of 30 hours of mortar and pestle (1 kilogramme independently). At 40°C, the concentrate was tampered with dryness and reduced to pressure. This dried powder was used as a parent compound for all future exams

For extract preparation, the selected plant leaves and stem bark were utilised. The plants were gathered by the use of mechanical grinding machines, which were dried under shade and then grossly polished. The powder was passed through the No. 40 sieve and kept for extraction in an airtight container.

The plant material has been dried in the shade, crushed and separated by methanol.

The most advanced method in the plant material separation of metabolites could be dissolving mining. This approach is used for separating medium-to-low-instability analysis that can have a role in the scent and nature of the oil supplied by the plant. The proper option is important in order to obtain a decent yield from extraction and to avoid the loss of volatiles. The solvent used in this approach reveals the end of the synthetic chemicals eliminated.[24,25]

Physico-Chemical evaluation of crude drugs

The leaf-and stem bark powder physico-substance investigation has been performed. Complete debris, insoluble corrosive debris, and water-solvent debris were estimated in this examination. The complete debris esteems for Ficus microcarpa and Commelina clavata were 15.56 percent and 6.10 percent w/w, separately, showing generous inorganic presence. For Ficus microcarpa and Commelina clavata the insoluble corrosive not really settled to be 5.25 and 1.5% w/w, separately. For Ficus microcarpa and Commelina clavata, water solvent debris still up in the air to be 4.95% and 2.06% w/w individually. The discoveries are shown in the accompanying (table 1.1).

Physical test of crude drugs (Table 1.1)

Crude drugs	Physical Test			
	Nature	Colour	Odour	Taste
Ficus microcarpa	Coarse powder	Yellowish brown	Characteristic	Astringent
Commelina clavata	Coarse powder	Yellowish brown	Not Recognizable	Littile bitter

5.4.2 Extractive values (Table 1.2)

Crude drugs	Alcohol % w/w	Aqueous % w/w
Ficus microcarpa	7.15	5.86
Commelina Clavata	12.3	10.5

5.4.3 Loss on drying and foreign organic matter (Table 1.3)

Crude drugs	Loss on drying (% w/w)*	Foreign matter (% w/w)*
Ficus microcarpa	5.55	1.59
Commelina Clavata	6.50	2.01

5.4.4 Total Ash, Acid Insoluble Ash And Water Soluble Ash Values (TABLE 1.4)

Crude drugs	Total ash value* % w/w	Water soluble ash* % w/w	Acid insoluble ash value* % w/w
Ficus microcarpa	15.56	4.95	5.25
Commelina Clavata	6.10	2.06	1.50

Medicinal plants are natural medicinal products, which have been cultivated and harvested. Plant materials will be evidently polluted by a portion of the same plant or by other plants that are not therapeutically active or that are contaminated by insects, fungi, animal excretions and other pollutants such as earth, stone, dust and metal. It must be within defined limits in accordance with the WHO. The contents of foreign materials were extremely insignificant in this study. (Table 1.4)

Effect of Methanol extract of Ficus Microcarpa and Methanol extract of Commelina clavata on biochemical estimation of Serum Glutamic Oxaloacetic Transaminase (SGOT)
(Table 1.5)

S. no.	Groups	SGOT (U/L)
1.	Normal	150.5 ± 1.5
2.	carbon tetrachloride	280 ± 1.5
3.	Silymarin	160.5 ± 1.5
4.	Methanol extract of Ficus Microcarpa extract (500 mg//kg)	235.5 ± 1.5
5.	Methanol extract of Ficus Microcarpa extract (500 mg//kg)	225.4 ± 1.5
6.	Methanol extract of Ficus Microcarpa extract (500mg//kg)	213.2 ± 1.5
7.	Methanol extract of Commelina clavata extract (500mg//kg)	220.5 ± 1.5
8.	Methanol extract of Commelina clavata extract(500mg//kg)	215 ± 1.5
9.	Methanol extract of Commelina clavata extract (500mg//kg)	198.3 ± 1.5

All values were expressed as mean ± SEM and n=6

Effect of Methanol extract of Ficus Microcarpa and Methanol extract of Commelina clavata on biochemical estimation of Serum Glutamic Oxaloacetic Transaminase (SGOT) Graphical Description (Figure 5.1)

The comparative efficacy of these extracts for their hepato protecting action, the relation between the dose and the percentage decrease were shown, as illustrated in figure below, in the form of a bar diagram:(Fig 1.3)

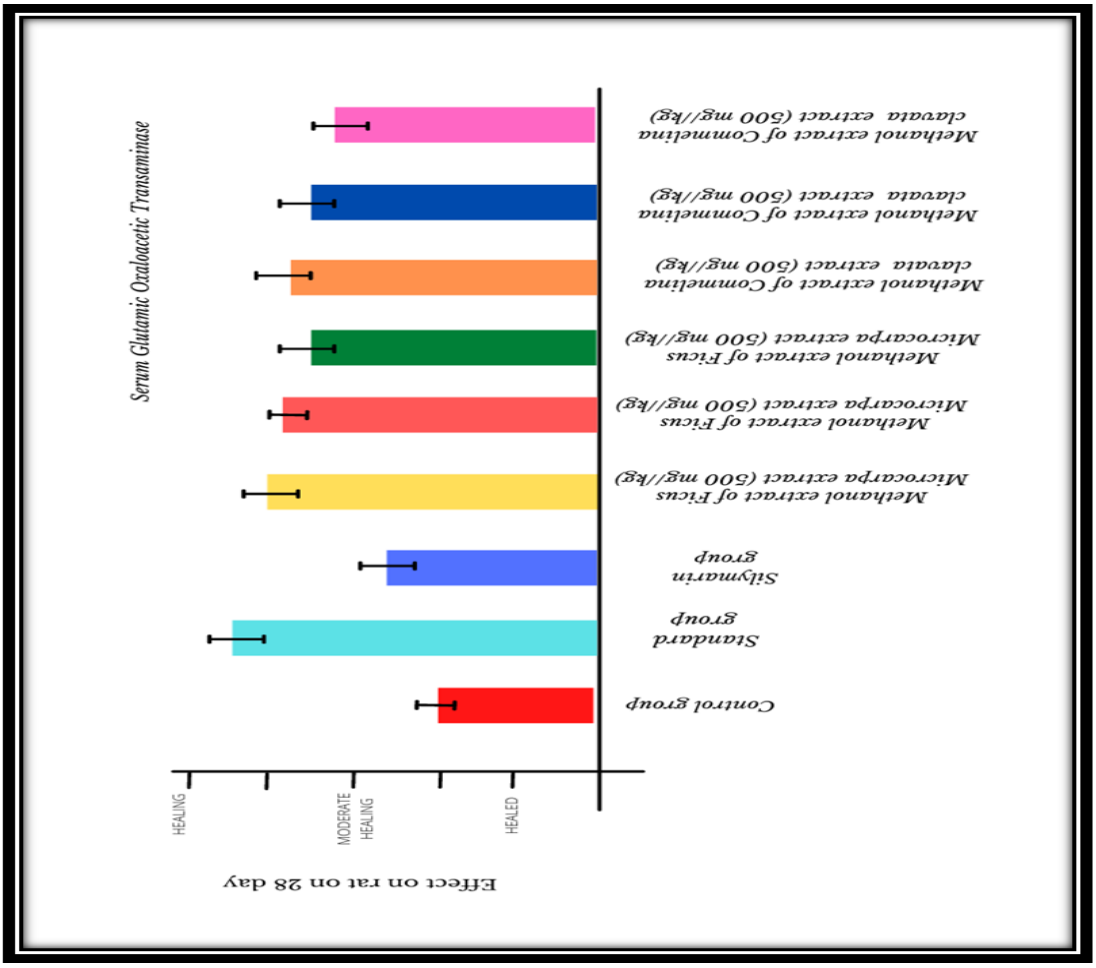


Figure 1.3: Effect of Methanol extract of both the plants SGOT.

Effect of Methanol extract of Ficus Microcarpa and Methanol extract of Commelina clavata on biochemical estimation of Serum glutamic Pyruvate transaminase (SGPT).
(Table 1.6)

S. No	Groups	SGPT (IU/l)
1.	Normal	102.9 ± 1.5
2.	carbon tetrachloride	257.5 ± 1.5
3.	Silymarin	110.2 ± 1.5
4.	Methanol extract of Ficus Microcarpa extract (500 mg//kg)	232.5 ± 1.5
5.	Methanol extract of Ficus Microcarpa extract (500 mg//kg)	229.6 ± 1.5
6.	Methanol extract of Ficus Microcarpa extract (500mg//kg)	223.4 ± 1.5
7.	Methanol extract of Commelina clavata extract (500mg//kg)	236.5 ± 1.5
8.	Methanol extract of Commelina clavata extract(500mg//kg)	214.7 ± 1.5
9.	Methanol extract of Commelina clavata extract (500mg//kg)	192.8 ± 1.5

All values were expressed as mean ± SEM and n=6

Effect of Methanol extract of Ficus Microcarpa and Methanol extract of Commelina clavata on biochemical estimation of Serum glutamic Pyruvate transaminase (SGPT). Graphical Description

The comparative efficacy of the extracts tested for their hepato protective activity, the relationship between dose and percentage reduction in each case were depicted in the form of a bar diagram as shown in Figure below:

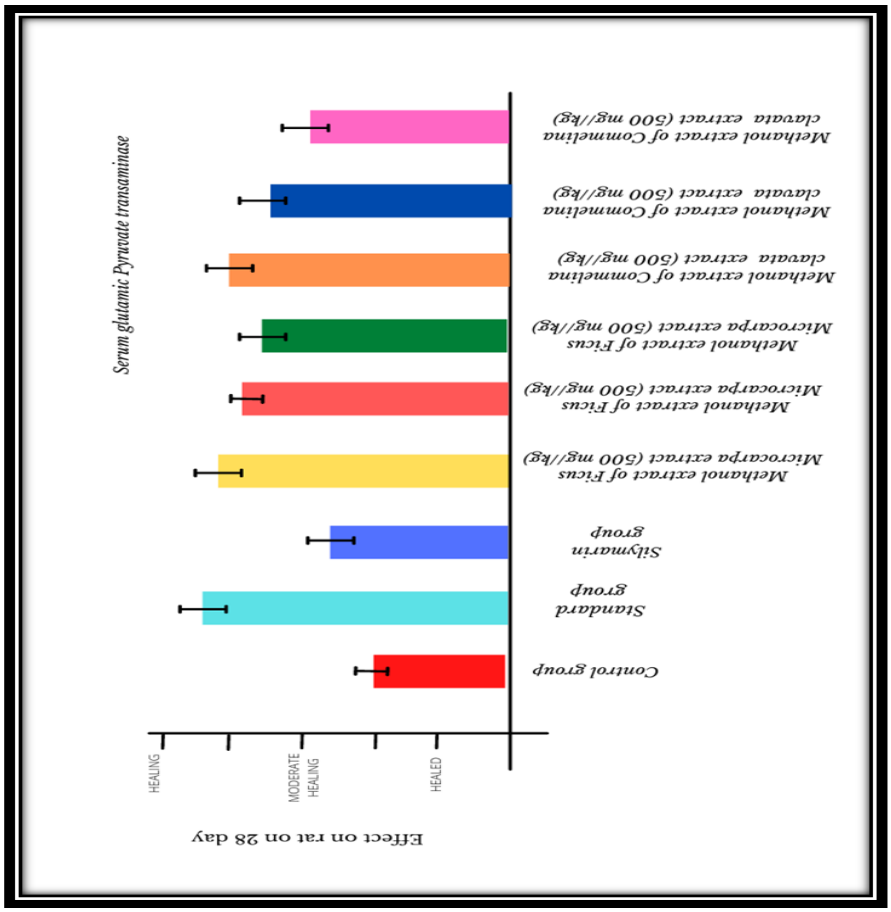


Figure 1.4: Effect of Methanol extract of both the plants SGPT.

Effect of Methanol extract of Ficus Microcarpa and Methanol extract of Commelina clavata on biochemical estimation of Alkaline phosphatase (ALP).
(Table 1.7)

S. No	Groups	ALP (IU/l)
1.	Normal	171 ± 1.5
2.	carbon tetrachloride	268.3 ± 1.5
3.	Silymarin	187 ± 1.5
4.	Methanol extract of Ficus Microcarpa extract (500 mg//kg)	246.5 ± 1.5
5.	Methanol extract of Ficus Microcarpa extract (500 mg//kg)	237.1 ± 1.5
6.	Methanol extract of Ficus Microcarpa extract (500mg//kg)	210.3± 1.5
7.	Methanol extract of Commelina clavata extract (500mg//kg)	228.3 ± 1.5
8.	Methanol extract of Commelina clavata extract(500mg//kg)	214.1 ± 1.5
9.	Methanol extract of Commelina clavata extract (500mg//kg)	203.8 ± 1.5

All values were expressed as mean ± SEM and n=6
International units per litre (IU/L).

Effect of Methanol extract of Ficus Microcarpa and Methanol extract of Commelina clavata on biochemical estimation of Alkaline phosphatase (ALP) Graphical Description

The comparative efficacy of the extracts tested for their hepatoprotective activity, the relationship between dose and percentage reduction in each case were depicted in the form of a bar diagram as shown in Figure below:

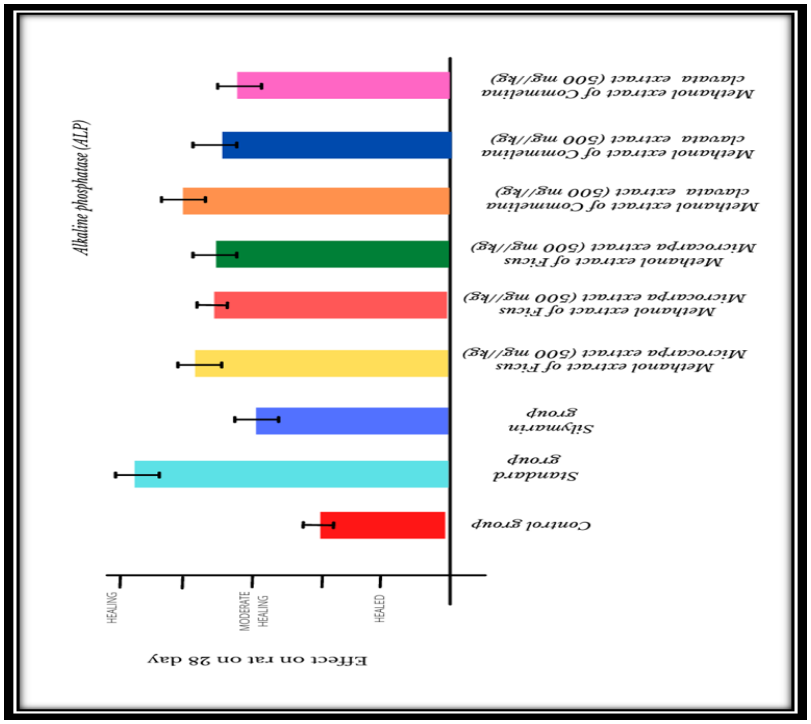


Figure 1.4: Effect of Methanol extract of both the plants ALP.

DISCUSSION

Liver ailment comes from hepatic cell injury and sinewy tissue development. The harming construction of the liver is without a doubt enormous and ordinary, and its capacity is harmed. Pretty much every physiological movement including stomach related, endocrine, circulatory and other metabolic exercises is influenced by this peculiarity. These modifications consistently demolish the harm to the liver.

The main role of the medication is to stay away from metabolic issues and liver cell recovery. To proficiently process meds, the liver produces prescription utilizing proteins of incredible physiological significance, that

help the digestion of drugs. Most of these catalysts are discovered dominatingly in liver microsomes. A medicine or xenobiotic atom's biotransformation following its article might change its dissemination and movement coming about into detoxification and discharge or increment its harmfulness by compound actuation or by biochemical unsettling influences prompted by biotransformations in responsive metabolites.

Xenobiotics are by and large biotransformed in two phases. Stage I (detoxification) digestion includes oxidative, reductive and additionally hydrolyte cycles to make more polar particles. The responses to stage II (manufactured response) incorporate forming the results of stage I of explicit endogenous mixtures. The digestion of large numbers of the meds into the polar metabolites through the stages I and 2 responses to early discharge can be accomplished utilizing the cytochrome P-450 and its isoforms. Hepatotoxicity in rodents delivered by the CCl4 is an enough settled, test model for the screening of hepatoprotective drugs liver cirrhosis in men.

In different locales of the world since the old occasions, home grown planning has been utilized. Their famous option in contrast to contemporary treatment has filled altogether lately.

CONCLUSION

Following are the significant consequences of the examination:

- Among the Methanol concentrate of Commelina clavata and Methanol concentrate of Ficus Microcarpa separates, most elevated rate yield was recorded in Commelina clavata extricate, while least was found in Ficus Microcarpa remove .
- Methanol concentrate of Commelina clavata showed the presence of alkaloids, phytosterols, terpenoidstriterpenoids, steroids, tars, tannins and saponins. This load of phytochemicals have hepatoprotective and cell reinforcement possibilities.
- Methanol concentrate of Ficus Microcarpa showed presense of Saponins, Flavonoids, tannins, Carbohydrates and terpenoidstriterpenoids. This load of phytochemicals have hepatoprotective prevention agent possibilities.
- The absolute debris esteems were observed to be 15.56% and 6.10% w/w for of Ficus microcarpa and Commelina clavata separately, which demonstrating that the extensive presence of inorganic matter. The corrosive insoluble debris esteems were observed to be 5.25% and 1.50% w/w for Ficus microcarpa and Commelina clavata separately. The water solvent debris esteems were observed to be 4.95% and 2.06% w/w for Ficus microcarpa and Commelina clavata separately. The outcomes are displayed above in tables.
- The Loss on Drying esteems were observed to be 5.55% and 6.50% w/w for of Ficus microcarpa and Commelina clavata individually, which demonstrating that the significant presence of inorganic matter.
- The Foreign Organic Matter qualities were observed to be 1.59% and 2.01% w/w for of Ficus microcarpa and Commelina clavata separately, which demonstrating that the extensive presence of inorganic matter.
- There was no mortality among the reviewed portion gatherings of creatures and they didn't show any harmfulness or social changes at a portion level of 500 mg/kg.

Further exploration are as yet fundamental to research the particular component of activity. Simultaneously as the previously mentioned plants can either be created exclusively or as a polyherbal detailing in a fitting portion structure, their pharmacological assessment is recommended using the suitable creature models and clinical preliminaries in human subjects.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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