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Phytochemical analysis of Gunma Kudori Mezhugu

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Abstract

Gunma Kudori Mezhugu was commonly used drug for Peptic ulcer, Gastritis, Dysmenorrhoea, Abdominal pain, Soothaga vaayu, etc. In this Mezhugu no researches done yet. This article is to explore Phytochemical analysis of Gunma Kudori Mezhugu.

This Mezhugu contains Alkaloids, Glycosides, Steroids, Triterpenoids', Phenol, Tannins, Saponins, and Sugars. These Phytochemicals possess excellent Antioxidants, Analgesic, Anti-inflammatory, improves digestion, support immune system.

Keywords: Gunma Kudori Mezhugu - Phytochemical analysis -Antioxidants - Anti-inflammatory Properties.

Introduction

Medicinal plants contain phytochemical compounds that are used as medicine for controlling various diseases and disorders. This study is to explore phytochemical in Gunma Kudori Mezhugu - a Siddha Herbo mineral drug.

Gunma Kudori Mezhugu was a standard drug commonly used for peptic ulcer, Dysmenorrhea, Abdominal pain, Soothaga vaayu, Dyspepsia etc. This drug contains plant products like dried ginger (*Zingiber officinale*), Black pepper (*Piper nigrum*), Thippili (*Piper longum*), Modi (*Piper longum*), Costam (*Codtasspeciosus*), Cloves (*Syzygium aromaticum)*, Poondu (*Allium sativum*), Honey, Omam (*Carum copticum*), Perungayam (*Ferula Asafoetida*), Panai Vellam and mineral drugs like salts like Indhuppu, Vediyuppu, Sotruppu, Valayaluppu, Vengaram, kallupu, pooneeru, Navacharam.

Purified drugs were used for preparing the medicine. Phytochemical analysis helps to explore the chemicals present in the drug and their properties like Antioxidant, Anti-inflammatory property, Rejuvenating action, increase memory etc.

Materials and Methods

Gunma Kudori Mezhugu

The drug Gunma Kudori Mezhugu was selected in accordance with the reference made in the Siddha Vaidhiya Thirattu page no. (200 - 201) Edition - 1998.
By Dr.KuppuswamyMudhaliyar and Dr.Uthamarayan

Ingredients:

1. Purified Indhuppu (Impure Sodium chloride)
2. Purified Kalluppu (Crystalline salt)
3. Purified Sotruppu (Sodium chloride)
4. Purified Uzhaman (Impure Sodium Carbonate)
5. Purified Valayaluppu (Glass Gale)
6. Purified Vengaram (Borax - Sodium Biborate)
7. Purified Navacharam (Ammonium Chloride)
8. Purified Vediyuppu (Potassium Nitrate)
9. Purified Chukku (*Zingiber officinale*)
10. Purified Milagu (*Piper nigrum*)
11. Purified Thippili (*Piper longum*)
12. Purified Kirambu (*Syzyygium aromaticum*)
13. Purified Omam (*Carum Copticum*)
14. Purified Kostam (*Costas Speciosus*)
15. Purified Modi (Thippiliver - *Piper Longum*)
16. Purified Perungayam (*FerulaAsafoetida*)
17. Peeled Garlic (*Allium Sativum*)
18. Purified Pannaivellam (Palmjaggery)
19. Honey

Process:

The above mentioned drugs were purified and all plant drugs are powdered and mix with mineral ingredients in kalvam. Then add Poondu, pannai Vellam and Honey (in required quantity) - made into paste (Mezhugu patham) and store it.

Dosage: Chundaikaiazhavu - 798mg - Twice daily.

Test for phytochemical analysis:

Test for alkaloids:

Mayer's Test: To the test sample, 2ml of mayer's reagent was added, a dull white precipitate revealed the presence of alkaloids.

Test for coumarins:

To the test sample, 1 ml of 10% sodium hydroxide was added. The presence of coumarins is indicated by the formation of yellow colour.

Test for saponins:

To the test sample, 5 ml of water was added and the tube was shaken vigorously. Copious lather formation indicates the presence of Saponins.

Test for tannins:

To the test sample, ferric chloride was added, formation of a dark blue or greenish black colour showed the presence of tannins.

Test for glycosides- Borntrager's Test

Test drug is hydrolysed with concentrated hydrochloric acid for 2 hours on a water bath, filtered and the hydrolysate is subjected to the following tests. To 2 ml of filtered hydrolysate, 3 ml of chloroform is added and shaken, chloroform layer is separated and 10% ammonia solution is added to it. Pink colour indicates presence of glycosides.

Test for flavonoids- Alkaline reagent test. Two to three drops of sodium hydroxide were added to 2 mL of extract. Initially, a deep yellow colour appeared but it gradually became colourless by adding few drops of dilute HCL, indicating that flavonoids were present.

Test for phenols:

A. Lead acetate test: To the test sample; 3 ml of 10% lead acetate solution was added. A bulky white precipitate indicated the presence of phenolic compounds.

B. Test for steroids: To the test sample, 2ml of chloroform was added with few drops of conc. Sulphuric acid (3ml), and shaken well. The upper layer in the test tube was turns into red and sulphuric acid layer showed yellow with green fluorescence. It showed the presence of steroids.

C. Triterpenoids: Liebermann–Burchard test: To the chloroform solution, few drops of acetic anhydride was added then mixed well. 1 ml concentrated sulphuric acid was added from the sides of the test tube, appearance of red ring indicates the presence of triterpenoids.

Test for Cyanins

A. Anthocyanin: To the test sample, 1 ml of 2N sodium hydroxide was added and heated for 5 min at 100^{o}C. Formation of bluish green colour indicates the presence of anthocyanin.

B. Test for Carbohydrates - Benedict's test: To the test sample about 0.5 ml of Benedic's reagent is added. The mixture is heated on a boiling water bath for 2 minutes. A characteristic-colored precipitate indicates the presence of sugar.

C. Proteins (Biuret Test): To extracts 1% solution of copper sulphate was added followed by 5% solution of sodium hydroxide, formation of violet purple colour indicates the presence of proteins.

Reference

Brain KR, Turner TD. The Practical Evaluation of Phytopharmaceuticals. Bristol: Wright Scientechnica; 1975:36-45

Phytochemical compounds and their actions:

Alkaloids:

Possess an excellent analgesic activity, acts as respiratory and cardiac Stimulant.

Glycolysis:

Strengthened blood capillaries by decreasing it's fragility, Antioxidant effect.

Saponins:

Acts as Expectorant, Anti-inflammatory, Diuretics, UTI disinfectant.

Steroids:

Reduces redness and Swelling (Inflammation).This can help with Inflammatory conditions such as Asthma and Eczema.

Triterpenes:

- Improves sleep
- Increased focus
- Improved Liver function
- Better brain function and clarity.
- Immune system support
- Nervous system support
- Improved digestion
- Regulate blood pressure and circulation.

Phenol:

Antioxidants activity means they can stop the free radicals with other molecules in your DNA as well as long health effects.

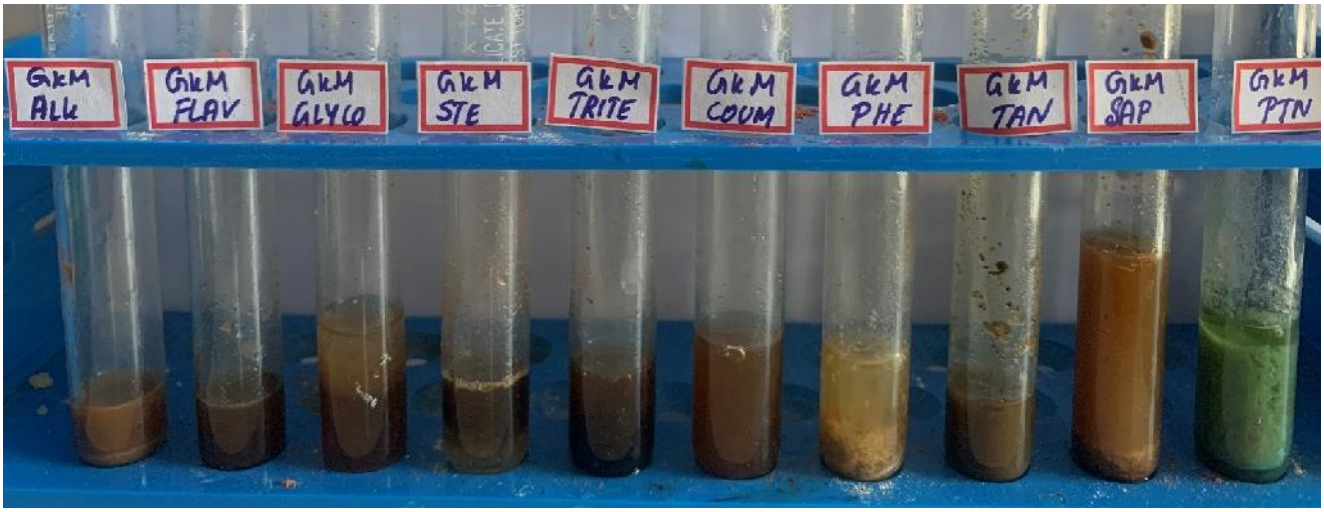
Tannins:

Tannins are Antioxidant, Autoinflammatory effects but may cause heal issues like Nausea on an empty stomach . Tannins lower total cholesterol, lower blood pressure and stimulate immune system.

Sugar:

Supply glucose to the brain and provide energy to cells around the body. Carbohydrates provide fibre and other nutrients to the body.

Results



Qualitative Phytochemical Investigation

Phytochemical analytical report

S.No	Test	Observation
1	Alkaloids	Present
2	Flavanoids	Absent
3	Glycosides	Present
4	Steroids	Present
5	Triterpenoids	Present
6	Coumarin	Absent
7	Phenol	Present
8	Tannins	Present
9	Protein	Absent
10	Saponins	Present
11	Sugar	Present
12	Anthocyanin	Absent
13	Betacyanin	Absent

The phytochemical constituents identified in Gunma Kudori Mezhugu were Alkaloids, Glycosides, Triterpenoids, Tannins, Phenols, Sugar, Saponins, Steroids were most abundant. These Compounds have wide range of pharmacological effects such as Antioxidant, Anti-inflammatory, Anti-asthmatic, Cardioprotective, Stimulate Immune system, Increasing digestive power, Improves Liver functions, Improves Sleep and Immune power, Regulate Blood pressure and Circulation. Thus it is a suitable and effective drug for peptic ulcer.

Discussion

This research work done with Gunma Kudori Mezhugu which has Herbo mineral constituents. Phytochemical constituents were analysed by preparing extraction from Gunma Kudori Mezhugu and specific test for Alkaloids, Flavonoids, Triterpenoids',Glycosides, Tannins, Phenol, Coumarins, Saponins, Steroids, Anthocyanins, proteins etc. In this mezhugu phytochemicals present were Alkaloids, Glycosides, Triterpenoids', Phenol, Tannins, Saponins and Sugars. More over Flavonoids, Coumadin, Proteins, Anthocyanin and Betacyanin's were absent.

So this mezhugu acts as a best remedy for Anti-Inflammatory, Increases immunity, Antioxidant, increases memory power and digestion, gives good sleep. This research proves this GUNMA KUDORI MEZHUGU a best drug as Appetizer, Antiulcer, Abdominal colic, Dysmenorrhea.

Conclusion

Mostly plants and mineral constituents in GUNMA KUDORI MEZHUGU plays a major role in traditional medicine system to cure several diseases. This mezhugu contains phytochemical compounds like Alkaloids, Steroids, Tannins, Triterpenoids, Saponins, Phenol and Sugars.

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