Evaluating the contribution of major herbal ingredients to the therapeutic potential of Megha Vac Recovery and Megha Primal Intake

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Introduction

- Herbal formulations are widely used as dietary supplements to enhance human health.
- The Megha Vac Recovery (MVR) and Megha Primal Intake (MPI) are two such polyherbal supplements composed of diverse medicinal plants such as;
  - Ginger (*Zingiber officinale*),
  - Garlic (*Allium sativum*),
  - Coriander (*Coriandrum sativum*),
  - Sweet Flag (*Acorus calamus*),
  - Malabar Nut (*Justicia adhatoda*),
  - Holy Basil (*Ocimum sanctum*),
  - Cocoa (*Theobroma cacao*)

- These plants contain a wide range of bioactive phytochemicals such as phenolics, flavonoids, alkaloids, and terpenoids that can scavenge free radicals, reduce oxidative stress, and regulate glucose metabolism.
- It is essential to evaluate the role of these herbs in MVR and MPI and their potential to enhance the bioactivity of supplements.

Methodology

Sample preparation

10 g of each sample was macerated in 100 mL of ethanol (EtOH) and water for 24 hours. The extract was filtered and concentrated using a rotary evaporator

Determination of antioxidant activity

Free radical scavenging activity was assessed using the DPPH radical assay

Determination of antidiabetic activity

The antidiabetic potential of the extracts was evaluated through the inhibition of α-amylase and α-glucosidase

Determination of anti-inflammatory activity

The anti-inflammatory activity was determined by the human red blood cell (HRBC) membrane stabilization method and proteinase inhibition assay

Determination of anti-lipase activity

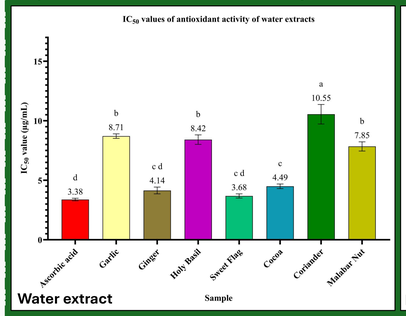
The anti-lipase activity was determined by the inhibition of the lipase enzyme

Statistical analysis

Statistical analyses were conducted using GraphPad Prism and IBM SPSS Statistics. For group comparisons, one-way analysis of variance (ANOVA) was used with $p < 0.05$ as the threshold for statistical significance.

Results

The bar charts below show the half-maximal inhibitory concentration (IC_{50}) values of ethanol and water extracts of plant components. The tallest bar represents the lowest activity, while the shortest bars indicate higher activity.



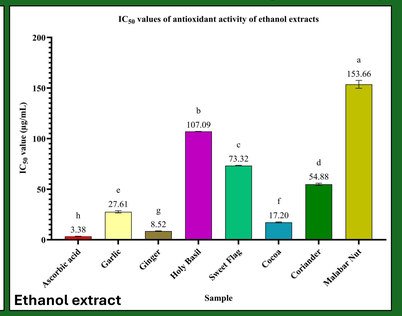
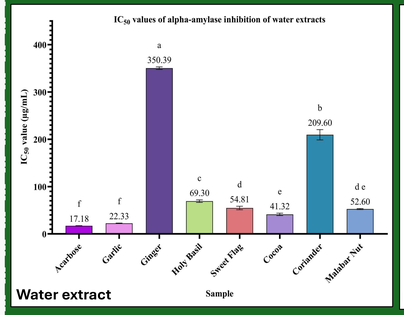


Fig 1. IC_{50} of antioxidant activity by DPPH assay



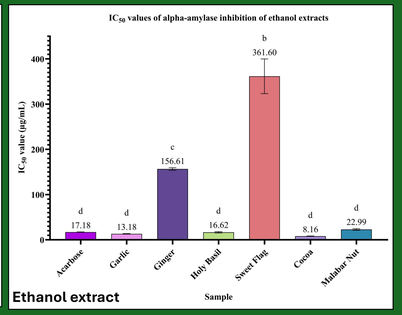
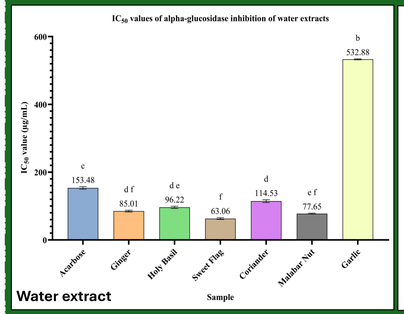


Fig 2. IC_{50} of α-amylase inhibition



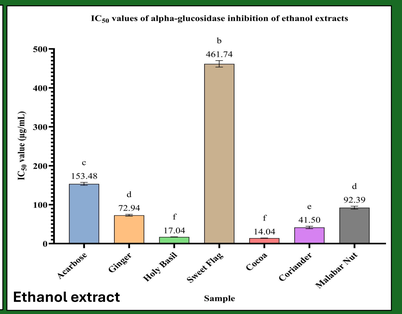
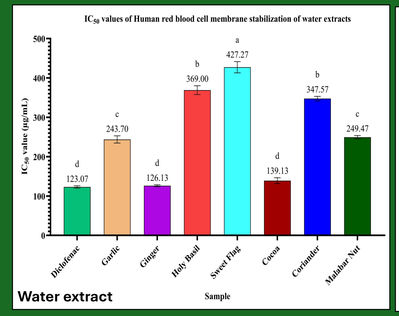


Fig 3. IC_{50} of α-glucosidase inhibition



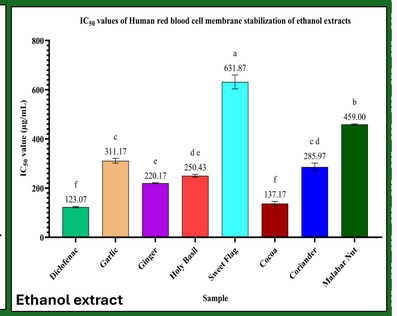
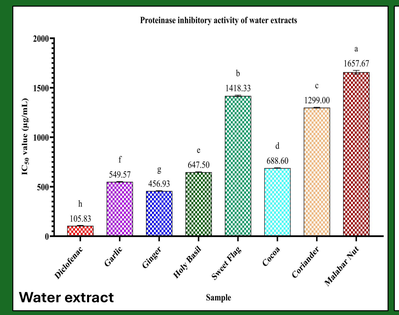


Fig 4. IC_{50} of HRBC membrane stabilization



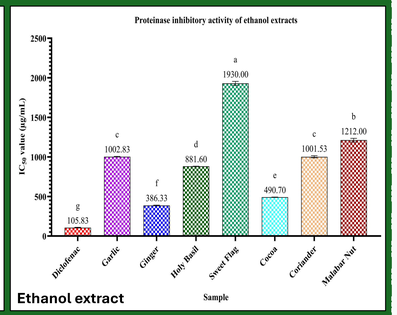
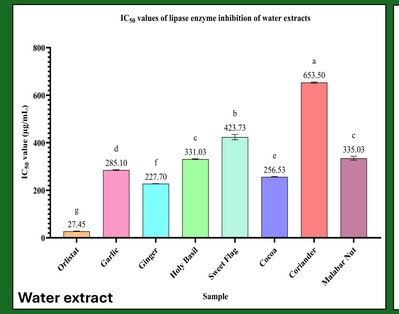


Fig 5. IC_{50} of proteinase inhibition



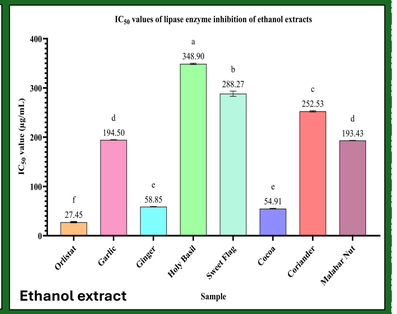


Fig 6. IC_{50} of lipase inhibition

Conclusion

These findings indicate a remarkable therapeutic potential of ginger and cocoa, exhibiting better bioactive properties. They not only enhance their own therapeutic value but also contribute to the increased effectiveness of newly formulated food supplements, MVR, and MPI. Ultimately, the incorporation of these plants in the supplement plays a vital role in improving the quality of life for individuals by offering natural therapeutic options.

Reference

Stoilova, I.; Krastanov, A.; Stoyanova, A.; Denev, P.; Gargova, S. Antioxidant Activity of a Ginger Extract (Zingiber Officinale). *Food Chem.* **2007**, *102* (3), 764–770.