

## Vitaflow: A polyherbal candy formulation to promote healthy blood flow – a comprehensive review

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### Abstract

Herbal functional candies are an emerging innovation in the field of nutraceuticals, blending tradition with convenience. Vitaflow, a polyherbal formulation in the form of a candy, is designed to support blood circulation using natural ingredients like ginger, turmeric, cinnamon, tulsi, and fennel. This review delves into the rationale, formulation, evaluation, and therapeutic potential of Vitaflow. The study highlights the increasing shift toward plant-based, consumer-friendly delivery systems, evaluating their pharmacognostic properties, safety profile, and possible market impact.

**Keywords:** Functional Herbal Candy; Vitaflow; Phytochemicals; Anticoagulant; Nutraceuticals; And Plant Based Supplements.

### 1. Introduction

The convergence of modern confectionery with herbal medicine has given rise to a unique product category: functional candies. These formulations serve not just to satisfy sweet cravings but also to deliver therapeutic benefits. The increasing preference for natural health products has encouraged exploration into herbal lozenges and candies, particularly in cardiovascular and digestive health. Vitaflow represents such an endeavor aimed at combining pleasant taste with medicinal value.

### 2. Types of candy

- **Hard Candy:** Hard candies are solid, sugar-based confections made by boiling sugar to high temperatures (typically above 140°C). They are designed to dissolve slowly in the mouth, releasing flavor over time. Examples: Lollipops, fruit drops, peppermints, rock candy.
- **Soft Candy:** These candies have a soft, chewy texture due to the inclusion of ingredients like fats, dairy, or invert sugars, which prevent crystallization. They are usually pliable and melt easily in the mouth. Examples: Toffees, caramels, nougats, fudge.
- **Gummy or Jelly Candy:** Gummy candies are made with gelling agents such as gelatin, pectin, or agar, giving them a rubbery and elastic texture. They are popular among children and often come in fun shapes and colors. Examples: Gummy bears, jelly worms, fruit jellies, wine gums.

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- Chocolate-Based Candy: These candies are primarily made from cocoa solids, cocoa butter, and sugar, often combined with milk or nuts. Chocolate candies can be molded, filled, or coated with various ingredients. Examples: Chocolate bars, pralines, truffles, chocolate-coated nuts.
- Aerated Candy: Aerated or foamed candies are light and spongy, created by incorporating air or gas into the candy mixture during production. This gives them a unique texture and mouthfeel. Examples: Marshmallows, honeycomb toffee (sponge toffee), aerated chocolate.
- Compressed Candy: These are made by compressing powdered sugar and flavoring agents into small, hard tablets without using heat. They often have a dry and chalky texture and may include vitamins or functional ingredients. Examples: Breath mints, tablet candies like PEZ or sweet tarts.
- Licorice and Root-Based Candy: Traditionally made using extract from the licorice root, these candies may also incorporate anise, fennel, or other herbal flavors. They have a chewy texture and a distinct taste. Examples: Black licorice, red licorice twists, herbal chews.
- Herbal or Medicinal Candy: These candies are formulated with herbal or plant-based extracts known for their mild therapeutic effects, especially for ailments like cough, sore throat, or indigestion. They combine taste with functional health benefits Examples: Ginger candies, tulsi or mulethi cough drops, menthol lozenges.

People are turning to herbal candies for common issues like cough, sore throat, or indigestion because they're made with natural ingredients and feel safer. With soothing herbs like tulsi, ginger, and mulethi, these tasty treats offer an easy, comforting way to get relief—without relying on synthetic medicines.

Coagulation is the process by which a liquid, especially blood, changes into a thickened or solid state. In the body, it refers to blood clotting—where blood changes from a liquid to a gel to stop bleeding from a wound.

An anticoagulant is a substance that helps prevent blood from clotting (coagulating). It is often called a "blood thinner" and is used to reduce the risk of clots forming in blood vessels, which can lead to serious conditions like heart attacks, strokes, or deep vein thrombosis.

The cases where herbal anticoagulant candy can be given:

- During long travel or prolonged sitting to support circulation
- As a daily wellness aid for heart and blood health (in healthy individuals)
- After meals to aid digestion and improve blood flow
- In cold weather to promote better circulation
- For mild joint pain or stiffness due to anti-inflammatory properties
- In older adults (not on blood thinners) to support blood flow naturally
- For people with a sedentary lifestyle to help prevent mild blood stagnation

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### 3. Why candy?

We chose the candy form for our herbal anticoagulant because it's simple, enjoyable, and fits easily into daily life. Instead of swallowing pills or dealing with bitter herbal drinks, you can just pop a tasty candy in your mouth and let it slowly do its work. It's made with natural ingredients like ginger, turmeric, and cinnamon, which are known to gently support healthy blood flow.

It's also super convenient—no prep needed. You can carry it in your bag, have it after meals, during travel, or whenever you like. Since the candy melts slowly, it gives your body more time to absorb the herbs naturally and gently. In short, we wanted to make age-old remedies easy, comforting, and enjoyable—especially for those who prefer natural choices over chemical ones.

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### 4. Know before you chew!

Herbal anticoagulant candies are primarily intended for adult populations seeking a natural approach to support healthy blood circulation. Formulated with plant-based ingredients known for their mild anticoagulant and circulatory benefits, they provide an accessible, non-pharmaceutical alternative for general wellness

#### 4.1. Geriatric Use (Older Adults)

These candies may offer supportive benefits for elderly individuals experiencing reduced peripheral circulation or joint stiffness. However, caution is advised in those who are on anticoagulant or antiplatelet medications, or with existing cardiovascular conditions. Medical consultation is recommended before use.

#### 4.2. Pediatric Use (Children)

Use in children is not recommended, as the concentration of active herbal compounds (e.g., curcumin from turmeric, gingerol from ginger) may be too potent for pediatric physiology. Unless specifically advised by a pediatrician, these formulations should be avoided in individuals under 18.

### 5. Nutraceutical trends in herbal confectionery

With the global nutraceutical market surpassing USD 400 billion, there is a significant uptick in herbal-based products aimed at general wellness. Functional candies infused with natural bioactives offer convenience, better patient compliance, and acceptability. These include lozenges for coughs, digestive candies, and now cardiovascular health-promoting options. Products like turmeric-gummies, ashwagandha chews, and polyherbal toffees reflect this ongoing trend.

#### 5.1. Scientific basis of blood circulation and herbal intervention

Blood circulation is critical to delivering oxygen and nutrients throughout the body. Impaired circulation can lead to chronic fatigue, hypertension, and cardiovascular diseases. Herbs like ginger and turmeric act as mild vasodilators and anti-inflammatory agents, enhancing microcirculation. Cinnamon regulates blood sugar and lipid profiles, while tulsi exhibits adaptogenic and anti-thrombotic properties. These synergistic effects support their inclusion in a candy designed to improve circulatory function.

#### 5.2. Advantages of functional candies

- **Palatability:** Enhances user compliance compared to bitter herbal decoctions.
- **Convenience:** No water or preparation needed; easy to store and consume.
- **Controlled Release:** Slow melting allows prolonged mucosal contact for better absorption.
- **Versatility:** Suitable as an on-the-go wellness product or post-meal digestive.

### 6. Clinical and wellness applications (expanded)

- Vitaflow is especially useful in:
- Office workers with sedentary routines.
- Elderly individuals seeking natural vasodilators.
- Travelers on long flights or drives to reduce the risk of mild thrombosis.
- People with cold extremities due to poor circulation.
- Those suffering from mild arthritis, where anti-inflammatory herbs help reduce stiffness.

**Table 1** Phytochemical profile of key ingredients

Herbal Ingredient	Key Phytochemicals	Biological Activities
Ginger ( <i>Zingiber officinale</i> )	Gingerols, shogaols	Anti-inflammatory, circulatory stimulant
Turmeric( <i>Curcuma longa</i> )	Curcumin	Antioxidant, antiplatelet, Mild anticoagulant
Cinnamon ( <i>Cinnamomum verum</i> )	Cinnamaldehyde, eugenol	Vasodilator, improves glucose and lipid profile
Tulsi( <i>Ocimum sanctum</i> )	Eugenol, ursolic acid	Adaptogen, blood thinner
Fennel( <i>Foeniculum vulgare</i> )	Anethole, fenchone	Carminative, improves circulation

These phytochemicals contribute to the blood-thinning, anti-inflammatory, and digestive benefits of the formulation.

## 6.1. Preparation and processing methodology

- Raw Material Procurement: Herbs were locally sourced from Pune and PCMC.
- Pre-processing: Cleaned, air-dried, and ground into uniform powders.
- Formulation: Powders mixed with coconut milk, jaggery, and honey to form a dough.
- Molding and Setting: Pressed into molds, cooled at room temperature.
- Final Coating: Optional sugar coating for improved taste.
- This method ensures ease of production while maintaining the therapeutic value of the ingredients.

## 6.2. Evaluation and quality control

To ensure product safety, efficacy, and stability, multiple tests are conducted:

- Organoleptic: Taste, color, and aroma.
- Physicochemical: pH (5.5–7.0), moisture content (<6%), solubility (<8 minutes).
- Phytochemical Screening: Alkaloids, flavonoids, saponins, terpenoids, tannins.
- Microbial Load: Bacterial count  $<10^3$  CFU/g; absence of *E. coli* or *Salmonella*.
- Assay of Active Compounds: Curcumin (1–3 mg/g), Eugenol (0.5–1.2 mg/g).
- Shelf Life: 3 months minimum under accelerated stability (40°C/75% RH).

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## 7. Toxicological safety and regulatory considerations

All ingredients used in *Vitaflow* are considered GRAS (Generally Recognized as Safe) by global food safety agencies. No artificial colors, synthetic preservatives, or heavy metals are used. However, caution is advised in individuals:

- On anticoagulant or antiplatelet medications.
- With diagnosed bleeding disorders.
- Children under 18 years (unless advised by a pediatrician).
- The product complies with AYUSH, WHO, and Indian Pharmacopeia guidelines for herbal preparations.

**Table 2** Comparative market analysis of similar products

Product	Function	Unique Feature
Giloy Satva Candy	Immunity booster	Uses giloy extract
Mahua Herbal Candy	Sore throat relief	Traditional mahua base
Liquorice Lozenges	Respiratory relief	Soothing mucosal coating
Vitaflow	Blood circulation	Cardiovascular focus with multiple herbs

While most herbal candies target cough and digestion, *Vitaflow* stands out by focusing on cardiovascular wellness—an underserved category in functional confectionery.

## 7.1. Future perspectives and research directions

For *Vitaflow* to reach broader markets and gain clinical credibility, the following steps are suggested:

- Randomized Controlled Trials (RCTs) to assess efficacy in improving circulation.
- Development of Sugar-Free Variant for diabetic populations.
- Long-term Stability Testing under various environmental conditions.
- Regulatory Filing with FSSAI for over-the-counter approval.
- Consumer Feedback Analysis for taste, preference, and perceived benefits.

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## 8. Conclusion

*Vitaflow* offers a novel, consumer-friendly delivery system for enhancing circulation and general wellness using polyherbal ingredients. Its palatable format, synergistic formulation, and potential therapeutic benefits position it as a

promising product in the functional food category. As health-conscious consumers increasingly seek natural and holistic remedies, polyherbal functional candies like Vitaflow mark a progressive step in integrative wellness solutions.

## Compliance with ethical standards

### Disclosure of conflict of interest

No conflict of interest to be disclosed.

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