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Skill-Based Preparation Of Ayurvedic Value-Added Products In College Laboratory: An Nep 2020 Perspective

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Abstract: Ayurveda, the ancient Indian system of medicine, emphasizes preventive healthcare and the therapeutic use of natural resources. Value-added Ayurvedic products such as Amla sharbat, Amla syrup, Amla candy, Ale pak, Green chilli pickle, Amla supari, and Mixed fruit jam were prepared in the college laboratory by undergraduate students under faculty supervision. The study followed a hands-on, skill-oriented methodology including selection of raw materials, extraction, cooking, preservation, drying, packaging, and storage. Organoleptic and stability evaluations revealed that the products were acceptable in quality, with Amla-based preparations retaining significant nutritional value, especially Vitamin C.

The initiative not only demonstrated the medicinal and nutritional potential of traditional Ayurvedic products but also served as a practical educational model in alignment with NEP 2020. Students developed skills in product formulation, quality assessment, hygiene, and entrepreneurship while integrating with botany knowledge. This approach highlights the importance of experiential learning in higher education, promoting self-reliance, entrepreneurship, and preservation of traditional knowledge.

Index Words: Ayurveda, Amla, Value-added products, NEP 2020, Experiential learning, Skill development

I.INTRODUCTION

The intersection of traditional knowledge and modern science has renewed global interest in the medicinal and nutritional potential of natural ingredients. Among these, Indian gooseberry (Emblica officinalis), Ginger (Zingiber officinale), Green chilli (Capsicum annuum), and a variety of fruits hold significant value in both Ayurveda and contemporary health research.

Amla (Emblica officinalis) holds prime importance due to its high vitamin C content, antioxidant properties, and its role in Rasayana (rejuvenation therapy). Amla Promotes hair growth, prevents premature greying, and improves skin texture.It plays important role in detoxification of the liver and supports its function.It helps in regulating blood sugar levels. Also, improves vision and reduces eye strain.

Another natural ingredients such as Ginger (Zingiber officinale), is useful in arthritis, muscle pain, and joint stiffness.Ginger clears mucus and supports relief from colds, coughs, and asthma.It is excellent for motion sickness and morning sickness. Also, improves blood circulation and reduces cholesterol levels.

Green chilli (Capsicum annum), enhances appetite and increases digestive fire (Agni).It contains Vitamin C and beta-carotene, which support immunity.Green chilli increases metabolic rate and helps in fat burning.It improves blood circulation and reduces risk of cardiovascular issues.

Fruits such as Papaya, is enzyme-rich.It aids in digestion and detox.Apple provides essential vitamins, minerals.Banana builds strength and soothes the stomach.These plant-based ingredients are not only dietary staples but also serve as potent therapeutic agents due to their antioxidant, anti-inflammatory, digestive, and immune-modulating properties. Their by-products such as jams, pickle, juice, candy are increasingly used in nutraceuticals, functional foods, and herbal formulations.

The preparation of Ayurvedic products such as Amla sharbat, Amla candy, Ale pak, Green chilli pickle, Amla supari, and mixed fruit jam not only enhances the understanding of traditional knowledge systems but also aligns with the objectives of the National Education Policy (NEP) 2020. NEP emphasizes 'learning by doing,' vocational skill training, integration of Indian Knowledge Systems (IKS), and entrepreneurship development for undergraduate students.This research work documents the student-centered preparation of Ayurvedic value-added products in the college laboratory, highlighting both scientific methodology and educational outcomes.

II.METHODOLOGY

The study was conducted in the college laboratory of Botany. Undergraduate students were engaged in hands-on preparation of Ayurvedic value-added products under the guidance of faculty.

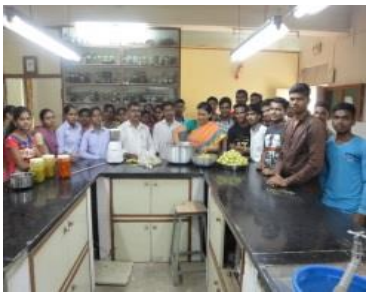
Product Details and Ayurvedic Properties

The following table describes the products prepared in the college laboratory, along with their ingredients, procedure, and Ayurvedic properties.

Product Name	Ingredients	Procedure	Ayurvedic Properties / Medicinal Use
Amla Sharbat	Amla juice, sugar, water, black salt, cardamom	Amla juice Extracted → Boiled with sugar →Added Black salt & Cardamom → Cooled & filtered → Stored in Bottle	Rich in Vitamin C, antioxidant, cooling, improves digestion
Amla Syrup	Amla pulp, sugar, citric acid	Amla pulp Boiled with Sugar → Concentrated → Citric acid Added→ Stored in Bottle	Immunity booster, anti-aging, improves skin health
Amla Candy	Amla pieces, sugar, spices	Amla(Sliced) Boiled → Dried → Coated with sugar/spices → Packed in jar	Digestive aid, antioxidant, improves appetite

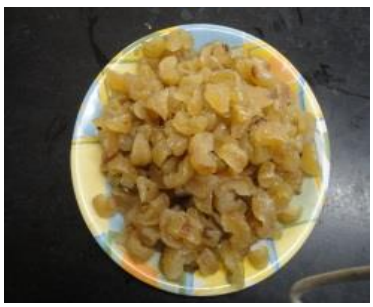
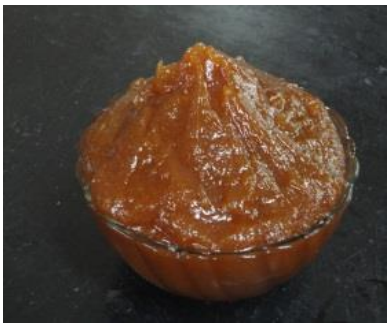
Ale Pak	Dry ginger, jaggery, ghee, spices	Jaggery was Cooked → Ginger powder & Ghee Added→ Solidify → Cut pieces →Stored in jar	Carminative, relieves cold & cough, improves digestion
Green Chilli Pickle	Green chilli, mustard oil, mustard seeds, spices	Chillies were Slitted → Mixed with spices → Oil Added → Stored in jar	Stimulates appetite, aids digestion, rich in antioxidants
Amla Supari	Dried amla, black salt, spices	Sliced Amla → Sun Dried → Mixed with Salt & Spices → Stored in jar	Mouth freshener, digestive stimulant, prevents acidity
Mixed Fruit Jam	Mango, apple, banana, papaya, pineapple, sugar, citric acid	Boiled fruit pulp with sugar → Citric acid Added→ Cooked till set → Stored in jar	Nutritive, energy rich, improves taste and appetite





III.RESULT AND OBSERVATIONS

- Organoleptic Evaluation: Products were tested for taste, aroma, texture, and color by faculty and students. All preparations were acceptable and comparable to market products.
- Shelf Life: Amla candy, supari, and ale pak showed stability for more than 2–3 months under proper storage. Jam and syrups had 1–2 months shelf life with preservative use.
- Nutritional Value: Retention of vitamin C was higher in amla candy and syrup compared to jam due to lower heat exposure.
- Student Outcomes: Students gained confidence in product formulation, hygiene maintenance, preservation techniques, and packaging methods. They also learned cost estimation and market feasibility.
- NEP Outcomes:
  - Integration of botany knowledge (Ayurveda) with modern food science.
  - Development of vocational and entrepreneurial skills among undergraduate students.
  - Enhancement of hands-on and experiential learning in line with NEP recommendations.


IV.CONCLUSION

The preparation of Ayurvedic products such as Amla sharbat, Syrup, Candy, Supari, Ale pak, Green chilli Pickle, and Mixed fruit jam in the college laboratory demonstrates a successful model of experiential learning. This initiative not only preserves traditional Ayurvedic knowledge but also provides students with practical skills, entrepreneurial vision, and interdisciplinary exposure.

By linking laboratory practices with NEP 2020 guidelines, the study highlights the role of higher education institutions in bridging traditional knowledge with modern applications, thereby preparing graduates for both academic excellence and self-reliant entrepreneurship.

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