Regional Culinary Knowledge System

Hawaijar and the Contemporary Science of Fermentation





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Food is rarely simply what is placed on a plate. Behind its final form lies a sequence of decisions about ingredients, season, preservation and preparation. Fermentation of food is one of the oldest and most consequential of these practices. Archaeological evidence places organised food fermentation as far back as the Neolithic period, around 7000 BC, when settled communities were developing new ways of preserving and transforming agricultural produce.

Fermented foods are also being examined for their possible relationship with the gut microbiome and metabolic health. India presents an unusually rich landscape for studying this relationship between food, microorganisms and knowledge. *Dahi, dhokla, dosa, idli, kanji* and other regional preparations represent only a small part of a much larger repertoire of fermentation practices across the country. Fermentation, including pickling and vinegaring, is in fact ubiquitous in the Indian household, a near-universal feature of the everyday meal that nonetheless takes a distinct, regionally specific form, from *gundruk* in the Himalayan belt to nolen gur-based ferments in Bengal and mustard-oil pickles across the north. A 2023 review in *Food Research International* describes Indian fermented foods through their microbial diversity, nutritional characteristics, functional properties and cultural contexts.

The history of fermentation in India also predates the scientific terminology through which it is understood today. Ayurvedic literature records preparations such as *asava* and *arishta. Charaka Samhita* is among the earliest classical texts to discuss fermented preparations at length, referencing *Sura, Sidhu* and *Sauviraka* as fermented liquids. A 2018 pharmaceutical review of Ayurvedic fermentation practice, published in the *International Journal of Green Pharmacy*, notes that the text describes roughly 84 *Asava* formulations drawn from 9 *Asava Yoni* or base fermenting materials, scattered across its *Chikitsa Sthana* chapters. Fermentation, in other words, belongs to a much longer history in which food, preservation, health and material knowledge intersect.

A North-eastern Inheritance

In India's Northeast, fermented food preparation and preservation have been transmitted across generations as part of everyday practice. Jeyaram et al. (2009) documented the significance of fermented foods within the region's food traditions, situating them within a broader Himalayan and Northeast Indian fermentation culture. Yet within this vast culinary landscape, some traditions remain remarkably unfamiliar outside their regions of origin. Manipur, in particular, holds extensive knowledge of fermented food preparation, developed originally as a means of preservation and valued for nutritional benefits. Among its best-known fermented foods are *Ngari* (fermented fish), *Soibum* or *Soidon* (fermented bamboo shoot) and *Hawaijar* (fermented soybean). This article turns to one such food, *Hawaijar,* which originates in Manipur.

The preparation of *hawaijar* begins with *Glycine max* (soybean) a nutritionally dense legume containing substantial protein together with lipids, carbohydrates, minerals, vitamins and phytochemicals including isoflavones, phenolic compounds and saponins. The beans are soaked and cooked and traditionally wrapped in leaves, fig or banana, before being left to ferment for several days. During fermentation, the soybean undergoes a pronounced physical and biochemical transformation.

At the microbial level, *hawaijar* represents alkaline fermentation. *Bacillus* species, particularly *Bacillus subtilis* and related organisms, play an important role in the process. Their enzymatic activity acts upon proteins and other components of the soybean, producing biochemical changes that account for much of the food's distinctive texture, flavour and composition.

For the traditional food maker, however, the process is encountered through observation rather than microbial taxonomy. The knowledge lies in knowing how the beans should be prepared, how they should be wrapped, where they should be kept and how the sensory characteristics of the ferment change over time. This is an important dimension of Indigenous Knowledge Systems: knowledge can be empirical without being expressed through formal scientific terminology. It can reside instead in repeated practice, sensory judgement, material selection and intergenerational transmission.

A Plant-Based Protein for Every Table

The nutritional significance of *hawaijar* deserves particular attention. Soybean is naturally protein-rich and provides an important plant-based source of protein and *hawaijar* forms a substantial component of the vegetarian diet, particularly among Manipur's vegetarian population, where its high protein content allows it to function as a genuine alternative to fish or meat. Yet *hawaijar* is not confined to vegetarian cooking alone: it is also prepared alongside meat, making it a genuinely inclusive culinary ingredient.

This versatility finds its fullest expression in *chagempomba,* a dish close to a porridge, in which *hawaijar* is an indispensable ingredient. Made with a mix of vegetables, herbs and rice, sometimes with meat, sometimes without as per one's choices. *Chagempomba* is traced back to periods of war and food scarcity in Manipur's history, when ingredients were meagre but nutrition still had to be assured. In this dish, *hawaijar* supplied the protein, rice the carbohydrates and the accompanying vegetables and herbs the minerals and vitamins, together forming a complete, sustaining meal from limited means. This gives *hawaijar* a socio-cultural significance separate from its scientifically documented microbial benefits.

At a time when India is addressing nutritional diversity, affordable protein and sustainable food systems, *hawaijar*'s relevance extends well beyond cultural preservation. The scientific interest in *hawaijar* extends beyond its protein content. The 2023 review in *Food Research International* examines the microbiology, nutritional composition, functional properties and safety considerations associated with *hawaijar* and discusses reported antioxidant, fibrinolytic, antidiabetic and ACE-inhibitory activities associated with the food and its microorganisms, identifying potential for further investigation in the functional food and nutraceutical sectors.

A Wider Family of Soybean Ferments

Hawaijar is part of a larger regional ecology of fermented soybean food traditions, including *kinema* in Sikkim, *bekang* in Mizoram, *tungrymbai* in Meghalaya and *axone* in Nagaland. Comparable fermented soybean traditions occur across Asia, including *tempeh* in Indonesia, *natto* in Japan, among several other regional forms.

This diversity is significant because fermentation is never determined by microorganisms alone. It is also shaped by the substrate available, local climate, household techniques, vessels, wrapping materials and cultural preferences. The microbial process is biological but the way a community learns to manage that process is cultural.

Hawaijar in National Conversation

Bringing hawaijar into the national conversation is therefore not simply an exercise in culinary representation. It opens a discussion about plant-based nutrition, microbial biotechnology, food preservation, sustainable food systems and the safeguarding of Indigenous Knowledge.

Hawaijar, then, is not an isolated case but an instance of a far larger pattern. Across India's regions, culinary knowledge systems reside quietly within the everyday meal: a fermented rice batter in the south, a jar of pickled greens in the north, and fermented vegetables in the Northeast, each a distinct, regionally evolved culinary practice. Yet the foods that represent Indian cuisine on a national or global stage constitute only a fraction of this accumulated knowledge. Beneath that visible surface lie regional food systems built on highly specialised expertise that remain invisible beyond the communities that sustained them. What is needed now is rigorous documentation and scientific engagement before such knowledge is lost rather than understood.

Fable with Moral

Raja Harishchandra and the Ultimate Test of Integrity

(Markandeya Purana)



In the Treta Yuga, king Harishchandra of the Ikshvaku line ruled with a reputation that reached the heavens. He was known above all for an unyielding vow: never to utter a falsehood, never to break a promise once given. Prosperity and peace flourished under his just hand. His queen Shaivya and young son Rohitashva shared a life of quiet dignity.

To test the depth of this integrity, sage Vishwamitra employed his divine powers. In a vivid dream he caused the king to offer him the entire kingdom. When Harishchandra awoke, the memory of the pledge remained clear and binding. Without hesitation or complaint he honoured the dream-promise, abdicated his throne, and departed with his family, reduced at once to absolute poverty.

Separated from wife and child, the former king accepted the lowest of labours, which was service at a cremation ground under a chandala master. Day after day he collected the mandatory fees for the burning of the dead, performing his duty with the same scrupulous honesty he had once brought to kingship.

Tragedy struck when Rohitashva died of a snakebite. Shaivya, herself reduced to servitude, carried the small body to the cremation ground and begged her husband to perform the last rites. Grief nearly undid him, yet Harishchandra refused. The burial tax must be paid; it was his employer's due, and duty admitted no exception, not even for his own son.

At that moment of supreme trial the Gods revealed themselves. Dharma himself had assumed the chandala's form. Vishwamitra's test was complete. The boy was restored to life, the kingdom returned, and Harishchandra, with his queen and people, was raised to the celestial realms.

True morality is the steadfast dedication to truth and dharma even when it costs status, comfort, and the deepest of human attachments.

Moral of the fable: Never break your Promise

Did you know?



One of the world's oldest surviving records of international trade finance is linked to ancient Kerala. Known as the Muziris Papyrus, this remarkable 2nd century CE document was discovered in Egypt and records a massive maritime cargo shipment from the Malabar Coast to Alexandria under Roman trade networks. Far more than a simple inventory, it functioned as a sophisticated commercial contract governing overseas trade.

The papyrus describes an astonishing cargo of black pepper, malabathrum, luxury tortoiseshell and ivory valued at nearly 7 million sesterces, an amount enormous enough to purchase a vast estate in the Roman Empire.

The document reveals that nearly 1,900 years ago, maritime trade between Kerala and the Mediterranean world operated through advanced legal agreements, credit systems, insurance mechanisms and large-scale commercial logistics. Long before the rise of modern banking institutions, the Indian Ocean trade network had already developed remarkably sophisticated systems of global commerce.

Wisdom Word Search

U	A	V	U	K	Y	F	Q	F	V	K	J	P
B	Q	U	Z	H	A	V	U	K	A	A	L	A
A	K	S	B	V	O	I	T	U	I	L	E	N
V	C	H	A	L	P	O	K	B	I	A	H	E
I	H	A	A	H	G	J	A	L	K	K	W	L
N	E	V	J	Y	A	N	L	K	A	O	C	L
I	R	U	I	L	H	S	A	G	H	T	F	A
L	U	D	H	T	J	I	P	V	A	J	Z	R
A	A	H	R	V	H	R	P	A	R	A	D	A
M	X	A	Q	R	O	U	A	R	G	A	Y	A
X	H	O	D	Q	W	M	U	E	A	K	E	N
Z	V	I	T	H	A	Y	K	K	U	K	A	S

WORDS TO FIND
Chal, Cheru, Kala, Kalappa, Nellara, Nilam, Para, U?havukaala, Vithaykkuka, Vithu

THE WISDOM LEXICON

CHAL - A narrow furrow to direct water flow
CHERU - slush for paddy transplantation.
KALA - Weeds or unwanted wild growth
KALAPPA - Ploughing Tool
NELLARA - Rice granary
NILAM - Field, agricultural land, or paddy field.
PARA - A traditional measuring vessel
UZHAVUKAALA - Ploughing Bullock
VITHAYKKUKA - The act of sowing seeds
VITHU - Seed

Note: These terms come from Gujarati, one of India's 22 Scheduled Languages.

Marvels of India

MILLETS



Millets are a remarkable expression of Bharat's agricultural heritage, combining ecological resilience, dietary value and civilisational continuity. Archaeobotanical evidence from Harappan and other early historical sites confirms the cultivation of sorghum, pearl millet, finger millet, foxtail millet and other millets. Textual sources, including the *Yajurveda, Arthashastra*, Ayurvedic treatises and later regional literature, record their cultivation, consumption and trade over long periods.

Strengthening Food Security
Millets are particularly valuable in rainfed and semi-arid regions. Their short growing cycles, drought and heat tolerance and ability to thrive on relatively poor soils enabled communities to secure food where water-intensive crops were less reliable. Their C4 photosynthesis also enhances water-use efficiency while some varieties require substantially less rainfall than rice, making them a practical buffer against rainfall uncertainty and crop failure.

Nutrition and Sustainability
Millets contribute to nutritional security by providing carbohydrates, dietary fibre, protein, iron, calcium and zinc. Their traditional cultivation and consumption also connected food security with local knowledge and sustainable agriculture.

QUIZ Agriculture & Food Security

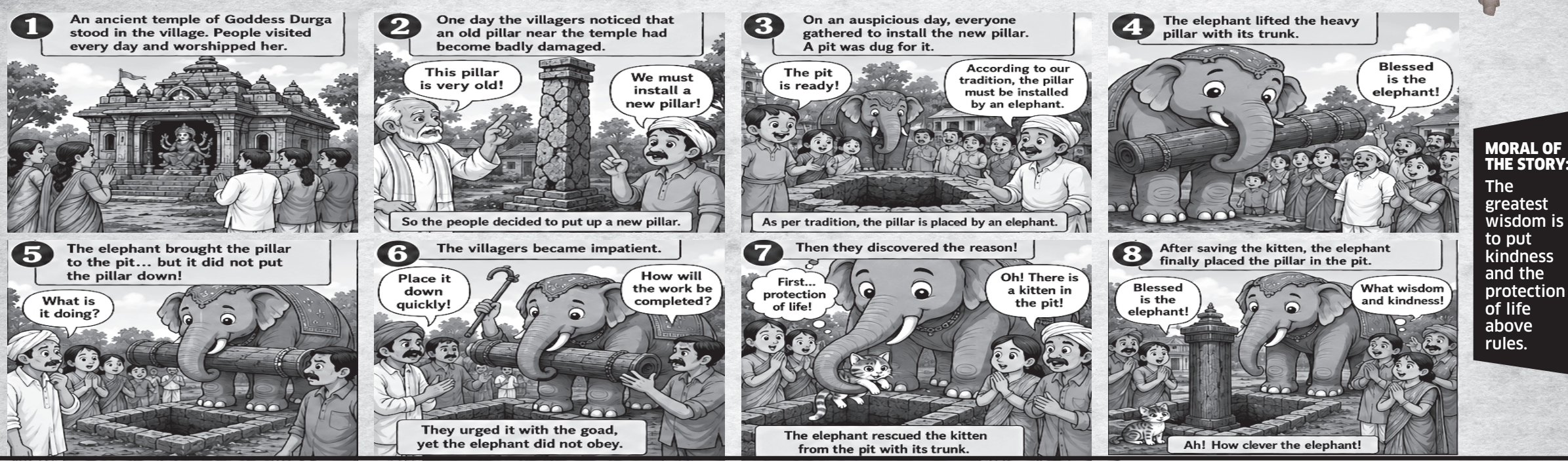
	Questions	Option A	Option B	Option C	Option D
1	 Ladakh has received the GI tag for this fruit. It grows wild across the cold desert areas, covering both the Leh and Kargil districts. What is its name?	Rasbhari	Sea Buckthorn	Phalsa	Apricots
2	Which of these crops is typically cultivated in the valley regions up to 800 m above sea level, requiring heavy rainfall? It has similar agroclimatic zones to coconut and arecanut.	Kokum	Cashew	Coffee	Tea
3	What primary purpose did the subterranean structures known as 'Khattis' serve amongst the traditional desert communities of India?	Rainwater harvesting and purification	To preserve food reserves against drought, famine or enemy raids	Cattle sheltering during sandstorms	To protect themselves from bandits
4	In which part of India are Kachri (wild cucumber), Phog (shrub flowers used in raita) and Matira (indigenous watermelon) naturally found?	Eastern Ghats	Central India	Himalayas	Thar Desert

Answers: 1 - B, 2 - A, 3 - B, 4 - D

niti-katha

WHEN COMPASSION COMES FIRST

The Wisdom of an Elephant



MORAL OF THE STORY:
The greatest wisdom is to put kindness and the protection of life above rules.