

#WONDERS

Does Honey Really Never Expire?

Archaeologists found honey estimated to be over 5,500 years old. Astonishingly, it was still preserved, and even considered edible



It's a claim that sounds almost mythical: honey never expires. Yet, evidence suggests there is real science behind this idea, so much so that jars of honey have reportedly outlasted entire civilizations. One of the most famous examples comes from ancient tombs discovered near Georgia, where archaeologists found honey estimated to be over 5,500 years old. Astonishingly, it was still preserved, and even considered edible. So, how does honey achieve this near-immortality?

It Starts with the Bee

The secret begins with the honey bee. When a forager bee collects nectar from flowers, she stores it in a specialized secondary stomach, often called the "honey stomach." Inside this chamber, an important chemical transformation begins. An enzyme known as glucose oxidase breaks down the nectar's sugars into gluconic acid and hydrogen peroxide, two substances that play a key role in preserving honey.

The Hive's Dehydration Process

Back in the hive, bees deposit this processed nectar into honeycomb cells. Worker bees then fan their wings vigorously, creating airflow that evaporates water from the nectar. Over time, the moisture content drops to below 18%. This is crucial because bacteria and microorganisms require water to grow. In such low-moisture conditions, they simply cannot survive.

Why Honey Resists Spoilage

Several factors combine to make honey incredibly resistant to decay.

- **Low moisture content:** Microbes are effectively "dehydrated" and unable to grow.
- **High sugar concentration:** Honey draws water out of bacterial cells through osmosis, killing them.

- **Acidity:** Honey has a pH between 3 and 4.5, comparable to acidic foods like lemon, creating an inhospitable environment for microbes.
- **Natural antimicrobials:** Hydrogen peroxide and other compounds actively inhibit bacterial growth.

But What About Molasses?

You might wonder: if low moisture helps preserve food, why do substances like molasses still expire? The answer lies in balance. While molasses is also low in moisture, it does not match honey's combination of acidity, sugar concentration, and antimicrobial compounds. Honey's preservation system is far more comprehensive.

The Role of Bee Chemistry

Modern science continues to uncover just how sophisticated honey is. In 2010, researchers at the University of Amsterdam identified a protein in honey called defensin-1, produced by bees. This protein has strong antibacterial properties, further enhancing honey's ability to resist spoilage.

So, Does Honey Expire?

Pure, properly stored honey does not spoil in the traditional sense. It may crystallize or change texture over time, but these are natural processes, not signs of decay. With minimal exposure to moisture and contaminants, honey can remain stable for thousands of years.

A Sweet Example of Natural Engineering

Honey is more than just a food, it's a product of extraordinary natural engineering. From enzymatic chemistry to careful dehydration and built-in antibacterial defenses, every step of its creation is designed for longevity.

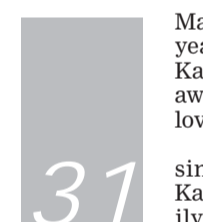
In a way, honey isn't just made to last a season, it's made to last a lifetime, or even several millennia.



President Droupadi Murmu presents Padma Bhushan to Smt. Suman Kalyanpur for Art.



Anjali Sharma
Senior Journalist & Wildlife Enthusiast



31

May 2026 (age 89 years), Suman Kalyanpur passed away. A sad day for lovers of music.

Veteran playback singer Suman Kalyanpur voluntarily stepped away from the music industry to prioritize her family and avoid the exhausting politics of Bollywood. Her talent was often overshadowed and miscredited, she bowed out in 1986 to focus on live performances, her domestic life, and peace of mind.

Suman Kalyanpur was born Suman Hemmadi on January 28, 1937, in Dhaka (then British India,

now Bangladesh) to a prominent Saraswat Brahmin family. Her father, Shankar Rao Hemmadi, was a high-ranking executive at the Central Bank of India, and her mother was Seeta Hemmadi. She was the eldest of six siblings, which included her younger sister and fellow singer, Shyama Hemmadi (Chittar). The Hemmadi family had roots in the village of Hemmadi in the Kundapur Taluk of Udupi District, Karnataka. In 1943, the family relocated to Mumbai, where Suman completed her schooling at St. Columba High School. Initially leaning towards the visual arts, she studied painting at the prestigious Sir J.J. School of Arts before pivoting professionally to Hindustani classical music and playback singing.

In 1958, Suman married Ramanand S. Kalyanpur, a Mumbai-based businessman. The couple had one daughter, Charul, who settled in the United States, and a granddaughter, Anishami Agny, who returned to Mumbai to



Rafi-Suman Kalyanpur.

She Was Superb She Was Suman Kalyanpur

The problem with Suman's singing was she never came out of Lata's shadow. She never established her own style and nobody would continue to go to her just because she sings just like Lata, when Lata was again available, as soon as Lata realized her mistake in an ego fight with fellow artist, Mohammad Rafi.



#OBITUARY

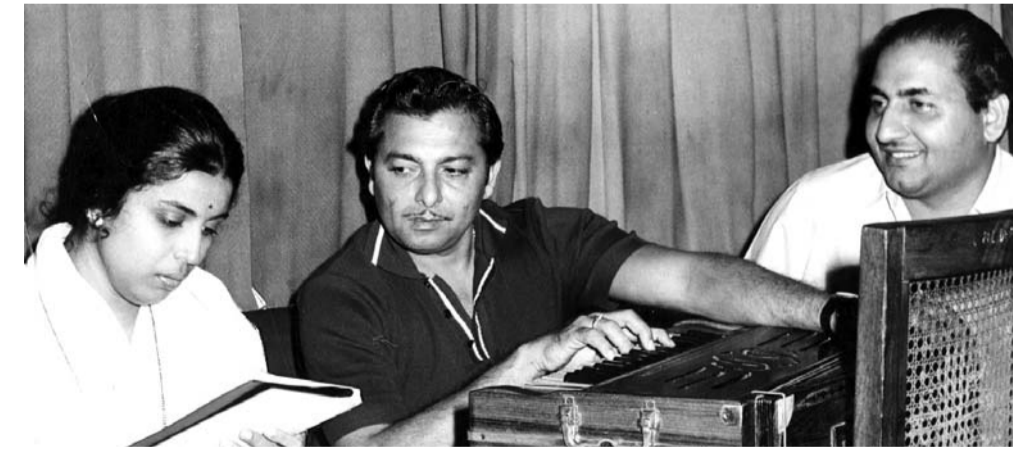


Her prolific career spanned from 1954 to 1988, during which she sang in more than ten regional languages, including Marathi, Gujarati, Bengali, and Assamese.

establish a charitable NGO. Legendary Indian playback singer Suman Kalyanpur recorded over 3,000 songs across multiple languages, including around 857 songs in Hindi alone. Her prolific career spanned from 1954 to 1988, during which she sang in more than ten regional languages, including Marathi, Gujarati, Bengali, and Assamese. She passed away at her residence in Mumbai. The veteran singer was known for her work in Hindi, Marathi and several other Indian languages during the golden era of film music from the 1950s to the 1970s. Born on 28th January 1937 in Dhaka, Bangladesh, her voice closely resembled that of Lata Mangeshkar, leading many listeners to mistake her songs for Lata's.

She made her Hindi film debut in the mid-1950s and went on to record hundreds of songs with leg-

endary composers and singers, especially Mohammed Rafi. Some of her most famous songs include "Aajkal Tere Mere Pyaar Ke Charche," "Na Na Karke Pyaar" and "Tumne



Pukara Aur Hum Chale Aaye," evergreen hits like "Na Tum Hamen Jano." She also made a significant contribution to Marathi music.

One little known fact about Suman is that she benefited tremendously from Rafi-Lata rift in the mid '60s. When Rafi and Lata stopped singing together for some personal reasons (fight I suppose!), music directors, who preferred Rafi, signed Suman to sing with him. After all, they could not get

any other male singer to sing for Dilip Kumar, Shammi Kapoor, Rajendra Kumar, Joy Mukherjee, Rajdeep Kumar, Dharmendra, and Shashi Kapoor. The result: we got such memorable duets like "Tumhe pukaara aur hum chale aaye" (Rajkumar, 1964), "Dil ek mandir hai" (Dil Ek Mandir, 1963), "Ajahoon na aaye baalma" (Saanjh Aur Savera, 1964), "Dil ne phir yaad kiya" (Dil Ne Phir Yaad Kiya, 1966), and "Na na karte pyaar tumhi se" (Jab Jab

The best duets featuring Suman happened in this period of Rafi-Lata rift. The post Rafi-Lata rift saw Suman fading back into the background and slowly slipping into near oblivion.

Phool Khile, 1965). The Rafi-Lata rift started sometime in the late 1962 and ended in the late 1967. The fight started around *bata ek rat ki / Paving guest time*, i.e., 1957-58



(*chand phir nikla* was the last song recorded) and ended around 1962/3 (*jogi jubse to aya mere dware* was the first song to be recorded) with *Bandini*. I guess Sachin Dev Burman's Suman songs are in this period. Sachin Dev has not used her before and after this period. Only Raj Kapoor, who preferred Lata and also because he did not have anything to do with Rafi, chose Mahendra Kapoor to sing for Rajendra Kumar in *Har dil jo pyaar karega* (Sangam, 1964).

Of course, half of the loot went to Asha Bhosle. But Suman held her own. The best duets featuring Suman happened in this period of Rafi-Lata rift. The post Rafi-Lata rift saw Suman fading back into the background and slowly slipping into near oblivion. It is known that the industry turned to Suman only when they wanted her to mimic



Lata in duets with Rafi. If you listen to those duets like *tumne pukaara aur hum chale aye*, you can easily feel that the song was composed in Lata style, and thus, Suman was preferred to fill in the gap created by the absence of Lata. Same could be case of *Mamata* duets. Suman sang other part of *rahe na rahe hum* with Rafi which was composed for Lata.

The problem with Suman's singing was she never came out of Lata's shadow. She never established her own style and nobody would continue to go to her just because she sings just like Lata, when Lata was again available, as soon as Lata realized her mistake in an ego fight with fellow artist, Mohammad Rafi. Remember, even Lata was under shadow of Noor Jehan in early days and many music directors wanted her to sing like Noor Jehan, but she established her own style. Similarly, Asha also made sure to come out of shadow of Lata and Geeta by developing her own style. She was

awarded the prestigious *Padma Bhushan* (India's third-highest civilian honor) in 2023 and the Maharashtra government's Lata Mangeshkar Award in 2009.

In an obituary to the famous singer, Prime minister Narendra Modi said, "Anguished by the passing of the popular singer Suman Kalyanpur Ji. Her melodious voice and soulful renditions enriched our cultural world. Through her songs, she created a special place among music lovers and admirers of Indian cinema. Condolences to her family and admirers. Om Shanti."

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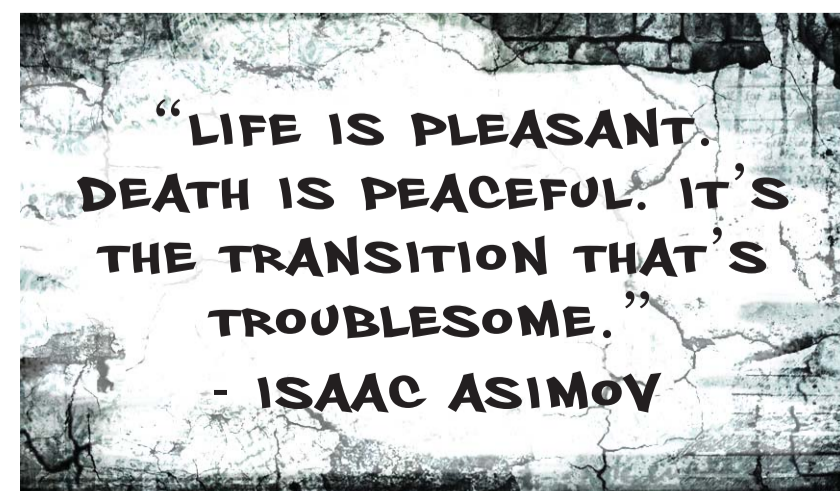
Addenda

In the heading of yesterday's article a grave mistake was made. The king is referred to as Henry 7th which should have been Henry 8th. The mistake is deeply regretted.



Talat-Suman.

THE WALL



BABY BLUES



By Rick Kirkman & Jerry Scott

ZITS



By Jerry Scott & Jim Borgman

