

FERMENTED MILKS AROUND THE WORLD

For centuries, fermented milks have provided essential nutrients and health benefits in human diets. Milk fermentation is as simple as adding live ferments to milk, leading to dozens of popular recipes around the world. How different are they? Get the science facts about Greek yogurt, lassi, skyr, laban, ayran, kefir... and many more.

WHAT IS MILK KEFIR?

MILK KEFIR OR WATER-BASED KEFIR? Kefir drinks can also be prepared by fermenting fruit juices, coconut water or molasses. This factsheet will focus on milk kefir.



THE KEFIR GRAINS IS WHAT MAKES IT UNIQUE!

Kefir is a drink, started with the kefir grains that clump together various bacteria and yeasts (vs only 2 bacteria in yogurt).

This leads to a **DOUBLE FERMENTATION** (lactic + alcoholic) and develops the sour & fizzy attributes of kefir.



FERMENTATION'S PROCESS

MILK + BACTERIA + YEASTS

- **Lactic acid bacteria:** *Lactobacillus*, *Lactococcus*, *Leuconostoc* or *Streptococcus* ⁽¹⁾
 - Feed on lactose
 - Yield lactic acid: lower pH which coagulates milk proteins
 - Release aromatic diacetyl & acetaldehyde
- **Acetic acid bacteria:** *Acetobacter* occasionally present ^(1, 2)
 - Feed on sugars to yield organic acids ⁽³⁾

- **Yeasts:**
 - Some feed on lactose (i.e. *Candida* or *Kluyveromyces*)
 - Some feed on other sugars (glucose) (i.e. *Saccharomyces* or *Kazachstania*) ^(1, 2, 4)
 - Yield CO₂ (self-carbonated drink) + alcohol (below 0.05 %) ⁽⁵⁾ by alcoholic fermentation



CULTURAL ORIGINS

- Name coming from Turkish "Keyif", meaning good feeling ^(5, 7)
- Originates from Caucasian mountains in Russia & Central Asia ^(4, 7)
- Popular in Middle East, Eastern Europe and Sweden
- Emerging in North America (USA) & Japan for its nutritional goodness ⁽⁷⁾



Milk kefir

Kefir grains

DIFFERENCES ACROSS REGIONS:

>50 bacteria & yeasts identified ⁽⁶⁾



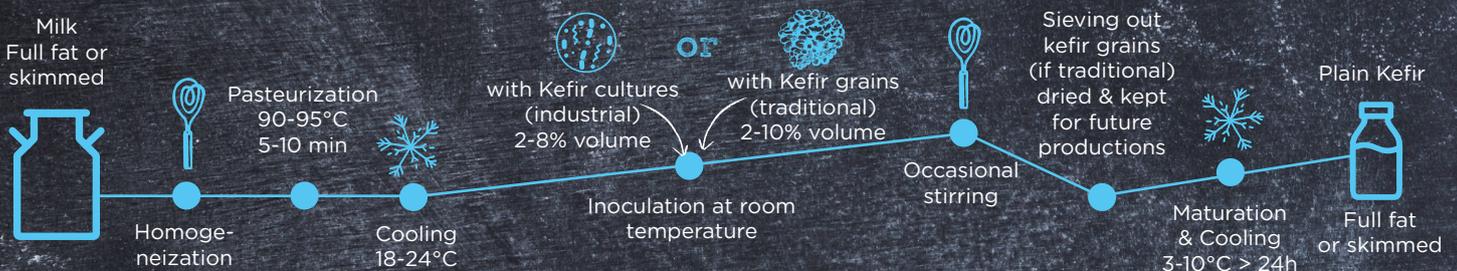
TASTE*

- Sweet
- Milky
- "Kefiry /Yeasty"
- Alcohol hints

TEXTURE*

- Liquid
 - Creamy
 - Fizzy
- * compared with plain yogurt

HOW IS IT MADE? (5, 7)



NUTRITION & HEALTH BENEFITS



→ AS ALL FERMENTED MILK PRODUCT

- Improved digestibility (lactose, protein) vs milk ^(5, 7, 8)
- Higher calcium uptake vs milk ⁽⁸⁾
- Other effects under study (changes in blood lipid profile, anti-inflammatory properties) ^(8, 9)

→ INCREASED MICRONUTRIENT DENSITY

- After kefir's yeast fermentation (vit B1, B2, B6, A, niacin, folates)



DID YOU KNOW?

Kefir grains are a "SCOBY": a Symbiotic Colony of Bacteria and Yeast

- Natural probiotic properties ⁽¹⁰⁾
- Reduce evaporation
- Naturally occurring carbonation ⁽¹¹⁾

KEFIR-LIKE PRODUCTS



- **Same product, other names:** kiaphur, knapon, kippi, Omaere (SW Africa), Roba (Arab countries), KjaKlder MjoKlk (Norway), Kellermilch (Germany), Tarag (Mongolia) ^(4, 7)
- **Osobyi (Russia):** from low-fat milk and enriched in protein ⁽⁷⁾



WHEN TO DRINK?

- In the morning
- During any meals
- As a snack



1001 WAYS TO ENJOY IT

- Perfect tangy taste to wake up a salad dressing or dips
- For fizzy fruit smoothies and sparkling cold veggie soups
- As the milk base of your home-made ice cream
- Cooking will destroy the live bacteria! Try adding kefir after cooking (in soups, for instance)
- Enjoyable simply plain or lightly sweetened.



NUTRITION FACTS ⁽¹²⁾

COMMON PORTION SIZES:



Small
- 1 glass (150 ml)



/ Average
- 1 container (250 ml)

PROTEIN

3.8 g / 100 g

- Dairy protein : all essential amino acids

CALCIUM

130 mg / 100 g

FATS Level depending on milk fat %

1 g / 100 g [range 0 - 3.5 g]

- Not necessarily in link with creamy mouthfeel
- Transporting the fat-soluble vitamins (vit. A)

SUGARS

4.6 g / 100 g

- **Simple sugars:** lactose (3.7%) & galactose (0.9%)

VITAMINS

Vitamin B1, B2, B6, B12, folates & biotin increase during the fermentation process ⁽¹⁰⁾

Vit B1:** 0.03 mg

Folates:** 13 µg

Vit B2: 0.14 mg

Niacin:** 0.15 mg

Vit B6:** 0.06 mg

Vit A:** 171 µg RAE

Vit B12: 0.3 µg

** higher in plain kefir than in plain 1% fat cow's milk ⁽¹³⁾

References

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