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### ALL ABOUT VINEGAR



Deriving its name from the French term *vin aigre*, meaning "sour wine," vinegar is a sour-tasting liquid produced through fermentation of ethanol by acetic acid bacteria. Vinegar's culinary use dates back to ancient civilizations with the Babylonians using it as early as 5000 BCE for both flavoring and preserving food. Ancient Egyptians, Greeks, and Romans also valued vinegar not only for its taste but also for its perceived medicinal qualities. Roman soldiers commonly drank a mix of vinegar and water called *posca*, while the Chinese were producing rice vinegar as far back as 1200 BCE.

Vinegar is produced in two main steps: alcoholic fermentation and acetic acid fermentation. First, a sugar- or starch-based substance (such as grapes, apples, rice, or grains) is fermented by yeast to produce ethanol. Then, specific bacteria, usually *Acetobacter*, oxidize the ethanol into acetic acid in the presence of oxygen.

Traditional production methods, such as the Orléans process developed in France, involve slowly aging vinegar in wooden barrels, which adds depth and complexity to its flavor. Modern industrial methods, like the submerged fermentation process, use stainless steel tanks and aeration to speed up production dramatically.

Beyond flavor, vinegar also affects the texture and chemistry of food. It can denature proteins, tenderize meat, brighten vegetables, and stabilize emulsions. Its acidic pH makes it useful in baking (as a leavening acid in combination with baking soda) and essential in canning and preserving. In short, vinegar is both a historic and indispensable ingredient in the global culinary landscape, valued as much for its versatility as for its sharp, defining taste.

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2

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### HEALTHY INGREDIENT CONTRIBUTION



While vinegar isn't nutrient-dense in the traditional sense, vinegar offers several functional health benefits that go beyond the flavor they add to a dish:

- **Aids Digestion & Gut Health**
  - Naturally fermented vinegars can contain probiotics, especially if unfiltered, which support gut microbiota and digestive health.
- **Supports Blood Sugar Control**
  - Vinegar has been shown to help reduce post-meal blood sugar spikes by improving insulin sensitivity and slowing the absorption of carbohydrates.
- **Enhances Satiety**
  - Adding vinegar to meals may promote a sense of fullness potentially aiding in appetite control and weight management.
- **Mineral Absorption**
  - Acetic acid in vinegar may help the body better absorb minerals such as calcium, magnesium, and iron from plant-based foods.
- **Heart Health**
  - Studies suggest regular consumption of vinegar may help lower cholesterol and triglyceride levels thus contributing to cardiovascular health.
- **Antimicrobial Properties**
  - Vinegar's natural acidity makes it effective in inhibiting growth of harmful bacterial both in food and in the digestive tract.

Nutritional Information/Pastors/Press <https://www.acf-culinary.org>

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3

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## INTERESTING FACTS



- The transformation of wine to vinegar was likely one of the earliest human encounters with fermentation long before people understood microbes or chemistry
- In the wine world, the presence of acetic acid bacteria is considered disastrous and can turn an entire vintage into vinegar
- In 18th-century Europe, failed beer batches were often turned into malt vinegar rather than being discarded
- According to legend, Cleopatra dissolved a priceless pearl in vinegar and drank it, proving she could host the most expensive meal in history
- Similar to Champagne, some varieties of vinegar carry a "Protected Designation of Origin" status
- Vinegar is made on every continent on the planet (except Antarctica) and a whopping 7 million tons is produced each year
- The global vinegar market was valued at over \$1.3 billion USD in 2023
- Using submerged fermentation tanks with controlled aeration, modern vinegar factories can produce batches of vinegar in as little as 24-48 hours
- In certain regions like the Caribbean, spicy vinegar or pickled pepper vinegar is drizzled over pizza for heat and acidity

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AUGUST 2025

VINEGAR

7

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## RECIPE

**Filipino Chicken Adobo**  
Yield: 4-6 Servings

**Ingredients:**

- 3 Lbs. Chicken Thighs, Bone-in, Skin-On
- 1/2 C. Cane Vinegar
- 1/3 C. Filipino-Style Soy Sauce
- 6 Cloves Garlic, Smashed
- 2 Bay Leaves
- 1 Tsp. Whole Black Peppercorns
- 2 Tbsp. Vegetable Oil
- 1 Medium Onion, Sliced
- 1/2 C. Water
- 2 Tsp. Brown Sugar
- Cooked Jasmine Rice, For Serving (optional)
- Green Onions, Sliced, For Garnish (optional)
- Red Chiles, Sliced, For Garnish (optional)

**Directions:**

1. In a large bowl, combine the chicken, vinegar, soy sauce, garlic, bay leaves, and peppercorns. Let marinate for at least 30 minutes or up to overnight in the refrigerator.
2. Remove the chicken from the marinated and reserve the liquid.
3. Heat vegetable oil in a deep skillet over medium heat.
4. Sear the chicken skin-side down until golden brown, about 4-5 minutes per side. Work in batches if needed. Remove the chicken from the pan.
5. Remove excess oil, leaving about 1 tablespoon. Add sliced onions and sauté for 2-3 minutes until softened. Return the chicken to the pan.
6. Pour in reserved marinade and add the water and brown sugar. Bring to a boil and then reduce to a simmer. Cover and cook for 30-35 minutes, turning chicken occasionally, until tender.
7. Remove the lid and simmer uncovered for 10-15 additional minutes or until the sauce thickens and slightly glazes the chicken. Excess fat can be skimmed if desired.
8. Serve immediately over steamed jasmine rice and garnish with sliced green onions and chiles if desired.



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AUGUST 2025

VINEGAR

8

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## QUIZ



After you read through this month's Ingredient of the Month, take this quiz to test your knowledge. In order to earn continuing education hours (CEHs) from the American Culinary Federation (ACF), the test must be completed through the ACF's Online Learning Center. Seventy-five percent accuracy is required to earn one hour of continuing education credits toward professional certification.

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AUGUST 2025

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9

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**QUIZ**

Question #1



Which bacteria is primarily responsible for converting ethanol into the acetic acid found in vinegar?

- A. Lactobacillus
- B. Streptococcus
- C. Acetobacter
- D. Bifidobacterium

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10

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**QUIZ**

Question #2



Which traditional vinegar-making method involves aging in wooden barrels?

- A. Orléans Process
- B. Bordeaux Cascade Method
- C. Open Vat Process
- D. Italian Balsamic Method

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11

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**QUIZ**

Question #3



What potential cardiovascular benefit has been associated with regular vinegar consumption?

- A. Increased heart rate
- B. Lower cholesterol and triglycerides
- C. Thickened arterial walls
- D. Higher sodium levels

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12

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**QUIZ**

Question #4

Acetic acid can help improve absorption of minerals like iron and calcium from plant foods.

A. True  
B. False



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13

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**QUIZ**

Question #5

You're developing a pan sauce in the kitchen. Which vinegar would best enhance the flavor with its aged, complex, and nutty profile?

A. Sherry vinegar  
B. Seasoned rice vinegar  
C. Champagne vinegar  
D. Spirit vinegar



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14

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**QUIZ**

Question #6

Spirit vinegar typically has lower acidity than white distilled vinegar.

A. True  
B. False



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15

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**QUIZ**

Question #7



What should you do if vinegar becomes unusually cloudy, smells off, or develops mold?

- A. Shake well and continue use
- B. Boil and reuse
- C. Add vinegar to dilute
- D. Discard it

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16

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**QUIZ**

Question #8



In addition to enhancing flavor, what key culinary function does vinegar serve when used in marinades?

- A. Breaks down fibers
- B. Acts as a thickener
- C. Neutralizes sodium
- D. Enhances color

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17

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**QUIZ**

Question #9



Which of the following accurately reflects global vinegar production and its market value in 2023?

- A. 700 tons; \$130 million
- B. 7,000 tons; \$300 million
- C. 70,000 tons; \$700 million
- D. 7,000,000 tons; \$1.3 billion

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18

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## QUIZ

Question #10



What is the primary acidic ingredient used in the marinade for Filipino Chicken Adobo?

- A. Lemon juice
- B. White distilled vinegar
- C. Cane vinegar
- D. Apple cider vinegar

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19

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## JOIN US NEXT MONTH!



Stay tuned for the next ACF Ingredient of the Month! Be sure to visit the Online Learning Center (OLC) to download a copy of each month's ingredient presentation. Don't forget to take the official IOTM quiz through the OLC to earn one hour of continuing education credits toward professional certification.

For more information:

[www.acfchefs.org](http://www.acfchefs.org)

[www.acfchefs.org/olc](http://www.acfchefs.org/olc)

[www.acfchefs.org/iotm](http://www.acfchefs.org/iotm)

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AUGUST 2025

VINEGAR

20

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