

# Food Science for the Win

## Tempering Spices Resource Guide



The kitchen is an ideal lab for experimenting and being curious while embracing your inner scientist. Explore the science of tempering spices.

### Basic Concepts and Terms

- **Spice:** Aromatic or pungent vegetable substance used to flavor food. Whole spices, such as cloves, peppercorns, mustard seeds, cumin seeds, and curry leaves, are best for tempering.
- **Smoke point:** Temperature at which an oil or fat stops shimmering and starts smoking. The smoke point usually indicates when the oil or fat is breaking down, and reaching the smoke point can result in a rancid flavor.

### Basic Equipment and Technique

- **Tempering pot:** Provides a stable, heat-resistant surface that can withstand a flame (on a gas stove) or conducted heat (on an electric stove). A heavy-bottom lipped frying pan, stainless steel pot, dutch oven, or well-seasoned cast iron pan can be used instead.
- **Spatula:** A non-stick, high-heat spatula or other utensil like a wooden spoon to stir spices.
- **High heat oil or fat:** A mild-flavored oil like canola or sunflower, or ghee (clarified butter).
- **Tempering or blooming spices:** A method of releasing flavors from whole spices in hot fat, which intensifies flavors and infuses them into the fat. High heat breaks down the spices and releases stored moisture. Instead of losing aromatics as the spice heats, as in a dry-roasting process, the fat absorbs the flavor. High heat results in a transformation of spice molecules into a bolder, more intense, less harsh flavor.

### Suggested Resources

- ***The Flavor Equation* by Nik Sharma ([link](#)):** Scientist, blogger, and cookbook author Sharma explores how to convert spices, herbs, and everyday pantry items into tasty, simple dishes.
- ***Indian-ish* by Priya Krishna ([link](#)):** Use simple ingredients in an easy, fun approach to Indian-American cooking, resulting in recipes that blend American and Indian cuisines.
- ***How to Temper Spices: An Easy Step-by-Step Guide* ([link](#)) from *The Kitchn* by Chitra Agrawal:** A comprehensive but easy-to-follow guide explaining the why and how of tempering spices.
- ***How to Make Tadka* ([link](#)) from *Serious Eats* by Nik Sharma:** Tadka, also known as tarka, refers to a technique as well as the infused oil it produces. It adds an extra layer of flavor and texture to many Indian dishes. Learn how to make it, the science behind it, and when to use it.