Tea Processing: The Steps That Make Each Type

From the teas.co.uk wiki

> **Tea processing steps, in summary:** Withering, oxidation, kill-green, rolling and firing. The same plant becomes every tea type through which steps are applied, in what order and how far. Real craft, not regional mystique.

This is the master map: the same leaf becomes every tea type through a sequence of steps. This anchors the processing cluster beside tea oxidation explained.

Last reviewed by the teas.co.uk team in April 2026.

One plant, one toolkit

All true tea, green, white, yellow, oolong, black and pu-erh, comes from one plant, Camellia sinensis. What makes them different is not the plant or some regional secret but processing: which steps a producer applies, in what order, and how far. The table below is the master map, and the sections after it walk through the levers one at a time. See what counts as tea for the species basics.

Step	Answer
Plucking	Bud and 1-2 leaves picked; quality dependent on selection precision
Withering	Wilting to reduce moisture 30-60%; softens leaves for further processing
Bruising	Optional; physical damage to cell walls; starts oxidation; oolong and black tea
Oxidation	Enzymatic browning; defining variable between tea types
Kill-green (fixing)	Heat to halt oxidation at desired level; pan-fire or steaming
Rolling/shaping	Mechanical or hand shaping; breaks cells; defines final leaf form
Firing/drying	Final moisture reduction; preserves finished tea; can add roasting character
Sorting/grading	Sieving and selecting by leaf size and quality
Optional steps	Roasting (extended firing), ageing, scenting (jasmine), shading (matcha)
Green tea	Withering minimal, kill-green early, no oxidation; rolling, drying
Black tea	Withering, rolling/bruising, full oxidation, firing
Oolong tea	Withering, bruising, partial oxidation, kill-green, rolling, firing/roasting
White tea	Minimal processing; withering and drying only; very gentle

Step	Answer
Pu-erh	Withering, kill-green, rolling, sun-drying, ageing (raw) or piling (ripe)
Framing	Tea type is processing decision, not plant variety; same plant, different processing

Withering

Withering is the first major step for almost all tea. It reduces leaf moisture from around 75 to 80% down to 60 to 70% (or as low as 50 to 55% for a deep wither), softening the cell membranes so the leaf can be processed without fracturing, and starting slow chemical changes. The leaves are spread thin on trays, wire racks or indoor troughs with air moving through them, usually at 20 to 30C for anywhere from 4 to 20 hours. The depth varies by type: green tea uses a minimal wither, white tea an extended gentle one of one to three days, oolong typically 6 to 12 hours, and black tea often 12 to 20. It is foundational, because withering depth decides what the later steps can do: over-withered leaf will not roll without breaking, and under-withered leaf will not bruise correctly. See tea withering.

Oxidation: the defining variable

Oxidation is the single most important variable distinguishing tea types. When leaf cells are damaged, by bruising, rolling or natural deterioration, the enzyme polyphenol oxidase reacts with polyphenols and oxygen, an enzymatic browning that converts catechins into theaflavins and thearubigins and changes flavour, colour and chemistry dramatically. It is often loosely called "fermentation", which is technically wrong (real fermentation is microbial), but the usage persists. The level is the whole point: roughly 0% for green tea (kill-green applied at once), 5 to 15% for white, 10 to 30% for light oolong, 30 to 60% for medium oolong, 60 to 85% for heavy oolong and dark Wuyi rock tea, and 100% for black. The kill-green step halts it at the target, and reading the leaf to hold that target takes real skill. See tea oxidation.

Rolling and shaping

Rolling does two jobs at once: it breaks cell membranes (releasing enzymes so oxidation can continue, or exposing compounds for green tea) and it shapes the leaf into its characteristic form. Green tea is rolled into needles (sencha), flat leaves (Long Jing), pellets (gunpowder) or twists (mao feng); oolong into tight balls (Taiwanese style) or twisted strips (Wuyi style); black into twisted whole leaf or the broken CTC (crush-tear-curl) form used for bags. High-grade tea is often hand-rolled for delicate shapes and commands a premium for it, while commercial production uses machines. Many premium teas get multiple rolling passes, with Tieguanyin sometimes taking 20 or more roll-and-rest cycles over hours. Pressure, duration and technique all show up in the cup. See tea rolling.

Kill-green, drying and firing

Kill-green (fixing) uses heat to deactivate the enzymes and halt oxidation at the desired level, locking in the style. The two traditions are Chinese pan-firing (woks at 200 to 300C, giving a faint toastiness) and Japanese steaming (around 100C steam for 15 to 45 seconds, giving a grassier, more vegetal character); green tea is fixed at once, oolong part-way through, and black tea skips it entirely because full oxidation is wanted. Drying then reduces moisture to a storage-stable 3 to 5%. Beyond basic drying, specialised firing,

longer and hotter, creates roasted character in Wuyi rock tea, aged oolong and Japanese houjicha, traditionally over charcoal (subtle smoky notes) or modern electric heat (consistent). Pu-erh is instead sun-dried, which preserves enzyme activity for later ageing. See kill-green fixing and firing and drying.

Optional steps, and reading the label

A handful of specialised steps create whole categories. Shading, covering the plants for two to four weeks before harvest, shifts the chemistry towards higher amino acids and lower catechins for the sweet umami of matcha and gyokuro. Roasting (an extended firing) defines rock teas and houjicha. Scenting layers tea with jasmine or other flowers so it absorbs the aroma, a process rather than an added flavouring. Ageing allows slow chemical evolution in aged pu-erh, white and oolong, and a monitored microbial wet-pile ("wo dui") transforms ripe pu-erh in weeks. As a buyer, the vocabulary is the tell: a vendor who names specific techniques and roast levels is showing sourcing depth, while vague "traditional methods" without specifics is usually marketing surface. High-grade tea can run to a dozen or more steps over 24 to 72 hours per batch, and that time shows in the cup.

FROM THE CURATOR

teas · The cup you finish is the right cup. Skip the variety until that one is sorted.

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