Tea Withering: The First Step

From the teas.co.uk wiki

> **Tea withering, in summary:** The first processing step: a controlled reduction of moisture, with accompanying chemistry, that softens the leaf and sets up everything after it. The quiet foundation of tea quality across all types.

Withering is the quiet first step that sets up everything after it. This sits in the processing cluster beside rolling.

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

What withering is

Withering means spreading freshly picked leaf to lose a controlled amount of moisture and soften. Fresh leaf is 75 to 80% water, and the wither brings that down to roughly 50 to 70% depending on the tea. That does two things: it makes the leaf pliable enough to roll without shattering, and it begins subtle chemical changes that shape the finished flavour. It is the foundation every later step depends on, and far from a passive wait, it is a continuously monitored, skilled process. See tea processing steps for the full sequence.

Aspect	Answer
What it is	First processing step; controlled wilting of fresh leaves to reduce moisture
Role	Soften cell walls; reduce moisture 30-60%; enable subsequent processing without damage
Starting moisture	Fresh leaves are 75-80% water; need reduction before further processing
Target moisture	Varies by tea type; typically 50-70% post-wither
Duration	4-72 hours depending on tea type, conditions, and target outcome
Temperature	Typically 20-30C; warmer for faster wither, cooler for slower
Humidity factor	Lower humidity speeds drying; higher humidity slows it
Methods	Outdoor sun-wither, indoor airflow racks, climate-controlled chambers
Green tea	Minimal wither (4-6 hours); preserves fresh character
White tea	Extended gentle wither (24-72 hours); defining processing step
Oolong tea	6-12 hours typical; balanced approach for partial oxidation
Black tea	12-20 hours often; deeper wither for full oxidation

Aspect	Answer
Chemical changes	Aroma compound development; protein hydrolysis; subtle preoxidation
Skill variable	Producer reads leaves continuously; experience determines optimal end-point
Framing	Foundation step affecting all subsequent processing; quality variable in itself

The chemistry

Withering is active chemistry, not just water removal. As the leaf loses water, cell turgor drops and the leaf turns flexible rather than crisp, and the softened cell membranes are what allow later rolling without fracture, which is exactly why under-withered leaf shatters. Meanwhile the gentle changes develop aromatic compounds, giving the characteristic "withered" smell that is genuine flavour creation rather than mere drying. Slow enzymatic breakdown of leaf proteins generates amino acids that feed the finished tea's umami, and even without deliberate bruising a long wither produces trace oxidation, which is why white tea can show 5 to 15% oxidation despite having no rolling step. See tea oxidation.

Methods

Different traditions wither differently, with real quality implications. Outdoor sun-withering spreads leaves on bamboo mats or trays in shade or partial sun, relying on ambient temperature and airflow; it is traditional and skill-intensive but weather-dependent. Indoor airflow troughs, large beds with fans drawing air through a wire mesh, are the modern commercial standard and allow precise control. Top-grade production may use climate-controlled rooms at a set temperature and humidity for predictable, consistent results, while the traditional bamboo-basket method stacks leaves in baskets for a gentle airflow wither. Some white teas and oolongs use a deliberate brief sun exposure, where UV stress nudges the chemistry. The method shapes the outcome: traditional ways can produce exceptional tea but with more variability, modern ways trade a little character for consistency.

By tea type

Each type wants its own withering judgement. Green tea uses a minimal wither (around 4 to 6 hours) to preserve the fresh character the kill-green will then lock in, and over-withering dulls it. White tea uses an extended, gentle wither of one to three days, and here the wither is the primary processing, with producers reading the leaves daily; this is what gives an aged Bai Mu Dan its honey and dried-fruit notes. Oolong sits in between at 6 to 12 hours, preparing the leaf for bruising and partial oxidation, and black tea takes a deeper 12 to 20 hour wither to set up full oxidation, with the wither itself contributing much of the finished character. Pu-erh, by contrast, gets a relatively brief 4 to 8 hour wither so the enzymes survive for later ageing. In general, a longer wither develops deeper, more nuanced flavour, at the cost of more time, labour and weather risk.

Getting it wrong, and judging it

Withering errors show up clearly in the cup. Over-withering leaves the leaf too brittle to roll, so it breaks rather than shapes, giving a dried-out or burnt character; under-withering leaves it too moist, so cells crush

rather than break cleanly and the oxidation runs uneven and rough. Wrong temperature pushes unwanted chemistry or drags the process out, wrong humidity either prevents moisture loss or crisps the leaf early, and a dirty or smoky environment is readily absorbed into the leaf. In the finished tea you can read the wither: well-withered leaf has a uniform colour and a clean, characteristic dry aroma, and the brewed leaves are evenly hydrated and intact rather than shattered. Off-aromas (musty, sour, unintended smoke) usually trace back to a wither problem. See how to judge tea quality.

Reference noted

- PubMed: Tannins and non-haem iron absorption

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