Why does green tea turn yellow or brown?

From the teas.co.uk wiki

Most green tea is supposed to brew yellow-gold. "Green" describes what happens to the leaf, not the colour of the drink: the leaves are heated early to stop them oxidising, which keeps them green and fresh-tasting. The liquid they make is usually pale yellow, gold or yellow-green.

So a golden cup is normal. What is worth investigating is a cup that turns **brown**, or one that has changed from how that same tea used to look.

The five usual causes

What you see	Most likely cause	What to do
Golden or yellow-green from the start	Normal for most green tea	Nothing
Brown and flat-tasting, straight from the pack	Stale leaf	Buy smaller, fresher packs and store them properly
Dark and bitter	Water too hot or brewed too long	70 (80°C, 1) 2 minutes
Darkens while it stands	Oxidation in contact with air	Drink it fresher, or chill it
Brown but tastes toasty and sweet	A roasted tea, by design	Nothing: that is hojicha

1. Age. Green tea goes stale faster than black

This is the most common reason a green cup turns properly brown. Green tea has not been oxidised during manufacture, so it carries on slowly oxidising on the shelf, especially in warmth, light, damp or open air. Old leaf loses its fresh grassy smell, browns in the cup and tastes flat and papery.

Green tea is at its best within a few months of opening. Keep it in an airtight, opaque container somewhere cool, dark and dry, away from strong smells, and do not decant it into a pretty glass jar on a sunny shelf. Our storage guide has the full routine.

2. Water that is too hot

Boiling water scalds green tea. It pulls out more colour and more bitterness, so the cup comes out darker and harsher than it should be. Aim for 70 to 80°C: either use a variable-temperature kettle, or boil and check with a thermometer as the water cools.

Brewing time matters just as much. One to two minutes is plenty for most green teas; a five-minute steep turns it dark and astringent.

3. Hard water

In hard-water areas the higher mineral content and pH make tea darker and duller, and green tea shows it more than black. Research comparing brewing waters found green tea infusions made with higher-pH, higher-mineral water darkened faster on contact with air. Brewing water and tea properties, Food Chemistry

A simple filter jug often brightens both the colour and the taste. A squeeze of lemon lightens the colour too, because acid changes how the tea's compounds absorb light: that is why iced tea goes pale when you add lemon.

4. Standing around

Brewed tea keeps reacting with the air. A cup poured half an hour ago will look browner than it did at the start, and a jug of iced green tea left out overnight will be noticeably darker. It is the same process that turns a cut apple brown. Brew what you will drink, and keep cold brews covered in the fridge.

5. It might not be a fault at all

Some teas are meant to be brown. Hojicha is green tea roasted until it is reddish-brown, and it should taste toasty and sweet rather than grassy. Genmaicha, with its toasted rice, brews golden.

Style matters too: Japanese steamed teas such as sencha brew greener and slightly cloudy, while Chinese pan-fired teas such as Mao Feng brew clearer and more golden. And matcha is not comparable to any of them: it is whole leaf powder suspended in water, which is why it is opaque and vivid green.

Getting a brighter cup

1. Start with fresh leaf from a pack you opened recently.
2. Use filtered water if yours is hard.
3. Cool the water to about 80°C.
4. Brew 1 to 2 minutes, then remove the leaves or bag.
5. Drink it fresh.

Twinings Pure Green Tea is a simple everyday bag to test this with. For a Chinese loose-style leaf with a more golden cup, try Teapigs Mao Feng Green Tea. Full method in how to brew green tea.

Common questions

Is brown green tea safe to drink?
Yes. Stale tea is a flavour problem, not a safety one. Throw it out if the leaves smell musty or damp, or show any mould.

Why is my bagged green tea darker than loose leaf?
Tea bags contain smaller particles, which release colour and tannin much faster. The same brewing time gives a darker cup.

Has my green tea turned into black tea?
No. Black tea is made by deliberately oxidising fresh leaves during manufacture. A stale or badly brewed green tea is just a tired green tea.

Should the leaves be green after brewing?

Wet green tea leaves usually stay olive to deep green. Leaves that unfurl brown and brittle point to old or heat-damaged tea.

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