

Science Project: Does Tea Stain Your Teeth?

Aim

To investigate whether tea stains tooth-like surfaces and how staining changes with time and brushing.

Hypothesis

If tooth-like surfaces are exposed to tea for longer periods, then the degree of staining will increase compared with surfaces exposed to water (control). Brushing will reduce staining but may not restore the original whiteness completely.

Materials required

- White eggshell pieces or white ceramic tiles (to mimic teeth)
- Tea bags
- Distilled water (control)
- Small containers
- Measuring cup, thermometer
- Stopwatch/timer
- Toothbrush and toothpaste
- Paper towels
- Camera or smartphone
- Notebook and pen
- Gloves, apron

Variables

- Independent variable: Type/time of exposure to tea
- Dependent variable: Degree of tooth staining (shade/color change)
- Controlled variables: Same tea concentration, temperature, sample material, lighting, brushing method

Procedure

1. Prepare samples and photograph baseline.
2. Make tea (same strength for all).
3. Set up groups (e.g., water control, 30 min tea, 1 hr tea, 4 hr tea, daily 10 min tea, tea + brushing).
4. Soak samples accordingly.
5. Remove, rinse, dry, and photograph.
6. For brushing group: brush with toothpaste for 2 minutes.
7. Record observations and color values.
8. Compare results between groups.

Data Table (example)

Sample ID	Treatment	Soak Time	Baseline RGB	After RGB	Δ RGB	Brushed?	Notes
S1	Distilled water	1 hr	(255,255,250)	(254,254,248)	3.0	N	No visible change
S2	Tea	30 min	(255,255,250)	(240,230,200)	46.1	N	Light yellow-brown
S3	Tea	1 hr	(255,255,250)	(220,190,150)	86.0	N	Medium brown
S4	Tea	4 hr	(255,255,250)	(200,150,110)	140.0	N	Dark brown
S5	Tea daily	7x10 min	(255,255,250)	(210,170,130)	100.0	N	Accumulated staining
S6	Tea + Brush	1 hr + brush	(255,255,250)	(235,210,180)	66.0	Y	Some stain removed

Conclusion

Under process – to be completed after collecting and analyzing data.