

SUPPLEMENTARY MATERIAL

Paper-based colorimetric sensor array for the rapid and on-site discrimination of green tea samples based on the flavonoid composition

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Preparation of reagents for colorimetric reactions

The reagents used in the colorimetric reactions were prepared using the methodology described below:

a) Vanillin-sulfuric acid reagent (C1): A 1% solution of vanillin in ethanol and a 5% ethanolic solution of sulfuric acid were prepared separately. The final solution was prepared by mixing the same volume of each.

b) NP-PEG (C2): The solution was prepared with 10 mL of 1 % methanolic diphenylboric acid- β -ethylamino ester (NP), followed by 8 mL of 5 % ethanolic polyethylene glycol-4000 (PEG).

c) Anisaldehyde-sulphuric acid reagent (C3): A solution was prepared by adding 0.5 mL of anisaldehyde in 10 mL of glacial acetic acid. To this solution were added 85 mL of methanol and 5 mL of concentrated sulfuric acid, in that order.

d) Ceric sulfate (C4): A solution was prepared from 2.1 g of $\text{Ce}(\text{SO}_4)_2 \cdot 5\text{H}_2\text{O}$ dissolved in 15 mL of sulfuric acid concentrated and added to 800 mL of water.

e) Aluminum chloride (C5): The reagent solution was prepared with 1% AlCl_3 in methanol.

f) Sulfuric acid solutions (C6): While cooling in ice, 5 mL of sulfuric acid concentrated were added cautiously in 50 mL of absolute ethanol.

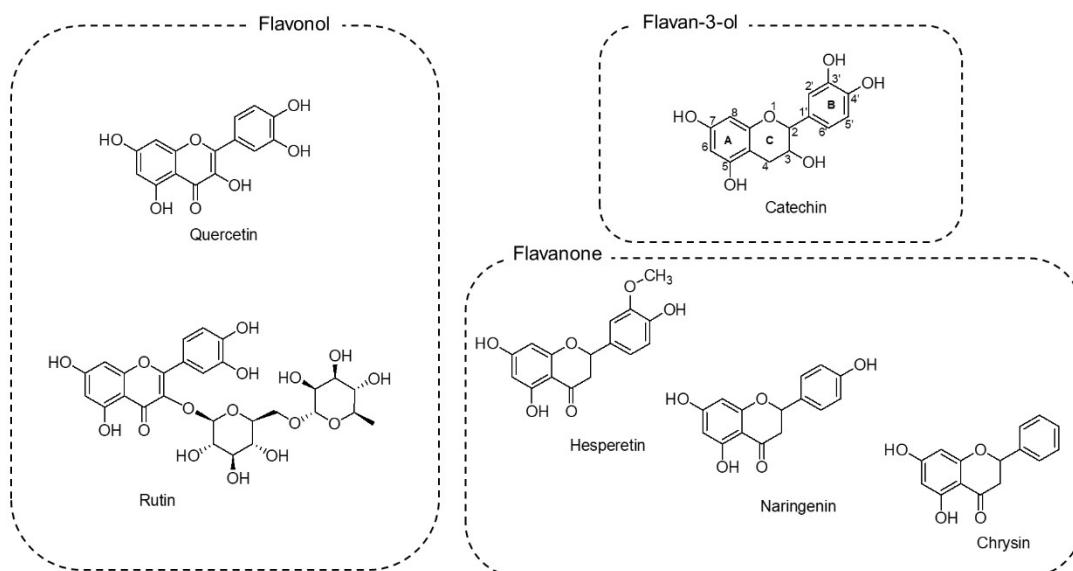
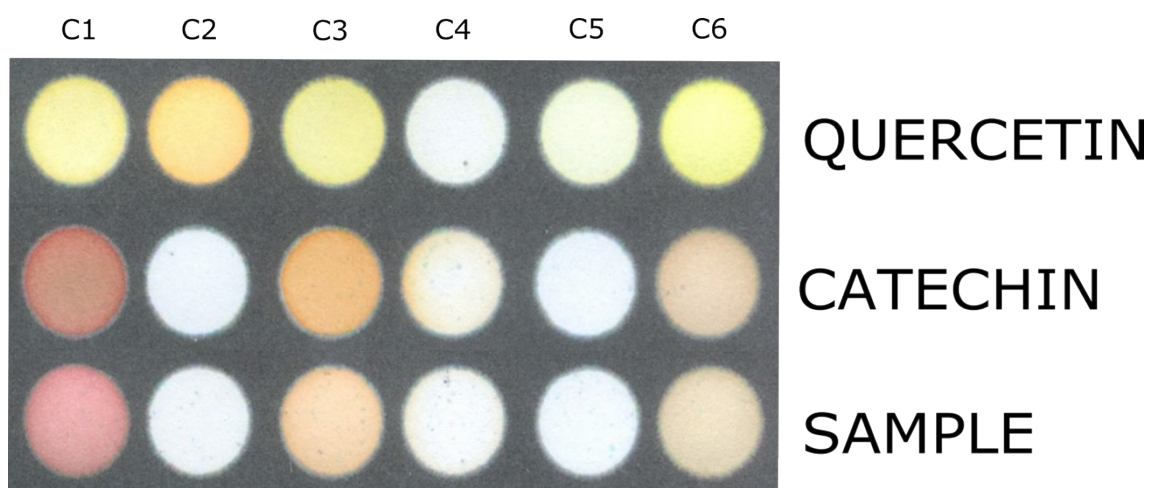


Figure S1. Flavonoids discriminated using the colorimetric sensor array.



Note: C1: Vanillin-H₂SO₄, C2: NP-PEG, C3: Anisaldehyde- H₂SO₄, C4: Ceric sulfate, C5: Aluminum chloride, C6: H₂SO₄.
HM sample

Figure S2. Digital images for quercetin, catechin and one sample of herbal medicine of green tea before reaction with C1 to C6.