Fluoride content of UK retail tea: comparisons between tea bags and infusions

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BACKGROUND

- 2013 paper
- Measured fluoride in 38 retail tea bags, concluding that economy versions represented a risk...

“Excess fluoride in the diet can lead to detrimental health effects such as fluorosis of the teeth and skeletal fluorosis and consuming economy branded tea will lead to exposure”.

Chan et al. (2013)
• Brewed tea for 2 minutes – longer than the typical brewing time of 30-40 seconds
• Added 2g dry tea to 100ml water – more concentrated than a typical tea bag in a cup or mug (3.125g in 200-250ml water)
• Compared estimated F- intake with the US Dietary Reference Intake of 4 mg/d rather than the EU safe upper level of 7mg/d.
EU Health Claims

- Fluoride strengthens the teeth/enamel;
  - Fluoride helps protect the teeth;
  - Fluoride helps the teeth recover after meals.

Fluoride contributes to the maintenance of healthy teeth/tooth mineralisation.

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**FLUORIDE RISKS v. BENEFITS**

- Dental fluorosis (1-6% prevalence UK)
- Cosmetic impact
- Skeletal fluorosis rare in UK, mainly in countries with high F- in water.

- Stronger tooth enamel
- Inhibits demineralisation
Tea analysis carried out by Scientific Analysis Laboratories Ltd, Manchester.
Dry weight tea
• Black blended 1164 mg/kg
• Speciality/single estate 877 mg/kg
• Decaffeinated 1464 mg/kg
• Figures > Chan which used ion chromatography
• In line with other studies for older (2000 mg/kg) and younger (250 to 300 mg/kg) tea leaves.

Tea infusions
• Similar findings to Chan for black and green.
### CONSUMPTION OF F- FROM TEA

**Average tea consumption**  
NDNS (2000)  
Adults = 540ml  
Older adults = 662ml  
+ F- water @ 1ppm

**Average F- content of black blended tea**  
= 4.91 mg/L  
= 1.18 mg/serving

*Compared with:*  
Recommended Daily Allowance (RDA) = 3.5mg  
EU upper safe level = 7mg/day (adults)  
EU upper safe level = 5mg/day (children 9-14 y)
AVERAGE F- CONTENT OF BLACK BLENDED TEA

Upper level adult
Upper level child
RDA

Fluoride (mg)

540ml
662ml
662ml + F water

Black • Decaff • Speciality
• Average daily tea intake = 395 ml
• 95\textsuperscript{th} centile of intake = 1155 ml
• Therefore, likely F- intakes from tea still less than upper level
• Updated analysis submitted for publication
• Current intakes of tea are unlikely to provide fluoride intakes that exceed safe limits for adults and children
• However, current intakes of tea do not provide enough fluoride to meet the RDA
• Therefore, potential dental health benefits of fluoride cannot be accessed unless tea consumption increases to 3-4 servings/d from present intake of 1-2 servings/d.
The Tea Advisory Panel: The Tea Advisory Panel is supported by an unrestricted educational grant from the UK TEA COUNCIL, the trade association for the UK tea industry. The Panel has been created to provide media with impartial information regarding the health benefits of tea. Panel members include nutritionists; dieticians and doctors. For further information please call 0207 7052 8989.

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