

Doc Ese's Kitchen Ketchup

Dr Ese Stacey

MBBS MSc FFSEM(UK) Dip(MSK USS)

Tamarind



Tamarind

- Jams, Chutneys, Asia, Africa
- Raw or cooked
- B vitamins, folate,
- Vit K, C, E, A,
- Minerals - calcium, copper, phosphorus, iron, magnesium, potassium, zinc, selenium
- Anti-oxidants



Tamarind

Lupeol

- Anti-inflammatory
- Anti-arthritic
- Anti-cancer
- Anti-malaria



Benefits



- Leaves, bark, roots, seeds & pulp
- Bark - asthma, amenorrhea, fevers, digestion, skin
- Leaf - throat infection, bone/joint, cough, fever, intestinal worms, conjunctivitis
- Seeds - contain pectin, oleic acids, other anti-inflam/anti-oxidants used for diarrhoea, arthritis, diabetes, cancers

Pulp

- Mild laxative
- Scurvy/Abdominal pain/Atherosclerosis
- Improves anti-oxidant status - glutathione
- Anti-microbial - *Staph*, *Listeria*, *Pseudomonas*, *Salmonella*, *E. Coli*, *B. Subtilis*
- Improves liver function, cholesterol metabolism



Pulp

- Rodent studies
- Liver protective
- Anti-obesity
- Reduced LDL and TG, increased HDL
- Anti-inflammatory
- Reduced food consumption



Effect of tamarind ingestion on fluoride excretion in humans

AL Khandare^{1*}, GS Rao¹ and N Lakshmaiah¹

¹*National Institute of Nutrition, Indian Council of Medical Research, Hyderabad, India*

Fluoride & Tamarind

“Hydrofluorosis is a major public health problem in 17 out of the 32 constituent states of India. Around 62 million people including 6 million children suffer from fluorosis due to excessive consumption of fluoride through water (Susheela, 1999)”.

Fluoride & Tamarind

- India
- 18 boys with fluorosis took 10 g of tamarind paste or control for 18 days
- **The boys having tamarind - significantly increased their excretion of fluoride compared to the controls**
- Urine was more alkaline
- Zinc excretion was less - i.e. zinc sparing

Fluorosis

- “In 2010, the World Health Organisation released a declaration stating the adverse effects of **excess fluoride** and highlighting that, in addition to **fluoride toothpastes** and varnishes, there can be high levels of fluoride present in **drinking water and food**”
- Not an essential food therefore not on nutritional labels.



Fluoride

Hershaw C¹, Fairchild R², Morgan MZ¹, Waddington R¹

¹ Applied Clinical Research and Public Health, College of Biomedical and Life Sciences, Cardiff University, School of Dentistry, Heath Park, Cardiff CF14 4XY

² Cardiff Metropolitan University, Department of Healthcare and Food, Cardiff CF5 2YB

“It is well-known that fluoride has a beneficial effect on the prevention of tooth decay; however an adverse effect of prolonged exposure to excess fluoride is dental fluorosis. In the UK, the prevalence of any form of fluorosis has been most recently estimated at 55% in fluoridated areas and 27% in non-fluoridated areas for 11-13 year olds.:

Fluoride

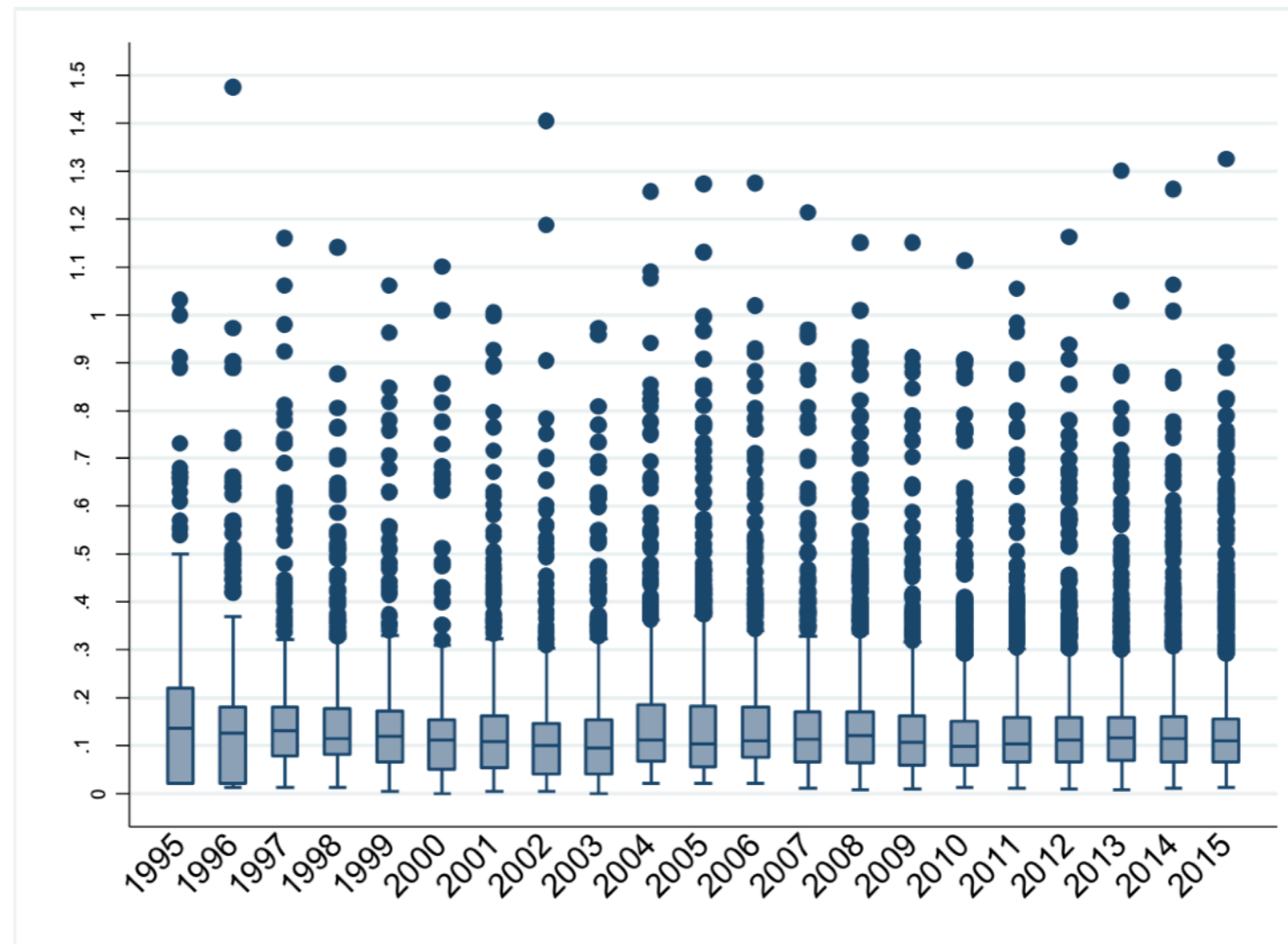
- In parts of the UK - 1960s fluoridation schemes after review found less tooth decay in areas with naturally fluorinated water.
- WHO Target fluoridation levels - 0.5-1 mg/l (ppm) - water.
- Over 1.5 mg/l (ppm) - increased risk of fluorosis

Water Fluoridation

PHE

Health monitoring report for England 2018

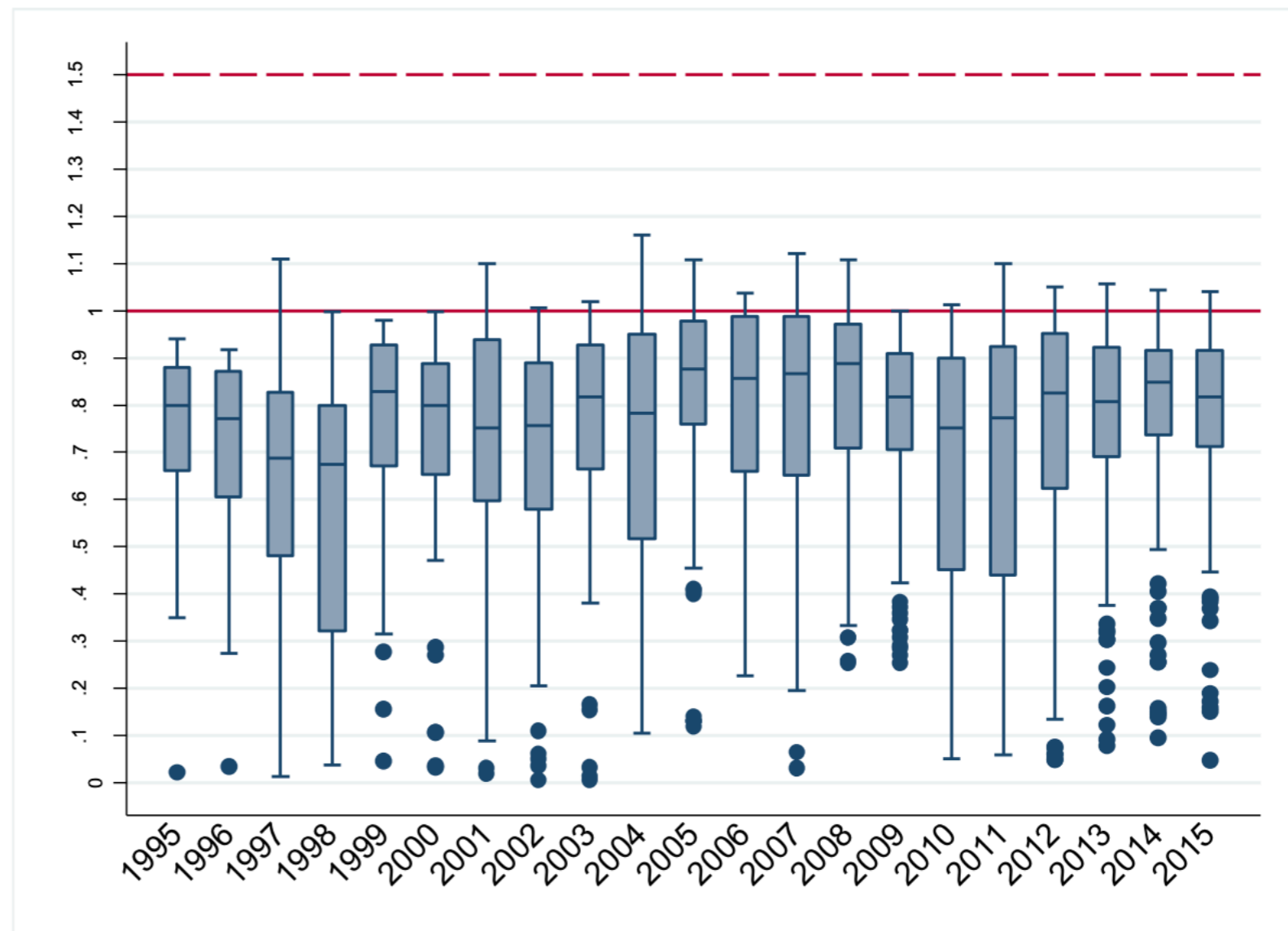
Figure 2. Box plot of annual fluoride concentrations in zones without a fluoridation scheme, 1995 to 2015. Boxes represent values from the 25th to 75th quantiles. The solid horizontal line in each box represents the median value. The dots represent 'outlying values'¹⁶



Water Fluoridation

Health monitoring report for England 2018

Figure 3. Box plot of annual fluoride concentrations in zones with a fluoridation scheme, 1995 to 2015. Boxes represent values from the 25th to 75th quantiles. The solid horizontal line in each box represents the median value. The dots represent 'outlying values'¹². The solid red horizontal line marks the 1mg/l target concentration and the dashed red horizontal line the 1.5mg/l PCV.



PHE Fluoride Monitoring

- Looked at dental caries - reduced in fluoridated areas, but 10% fluorosis (in fluoridation areas), around 2 % in non fluoridated areas
- Look at hip fractures - increased in those over 80 years in fluoridated areas.
- Decided not to look at - thyroid, IQ, all-cause mortality, all fractures, all cancers.

More about fluorosis

- Bones, aches/pains, abdominal, kidney, infertility
- Salted fish, pureed chicken, pasta, grape juice - from Spain, USA, Brazil
- Fluoride displaces iodine and competes at thyroid receptors
- Children ingesting > 2 ppm (2 mg/l) score worse on IQ tests than children ingesting < 1 ppm.

Fluoride Toxicity

- Toothpaste - American Association of Poison Control (AAPC) - toothpaste main cause of fluoride toxicity - mainly in children under 6

Fluoride Toothpaste

- Recommended intake based on body weight -
below 0.05-0.1 mg/kg - children
- 1-3 years 1.5 mg (weight 15 kg)
- 4-8 years 2.5 mg (weight 25 kg)

Fluoride Toothpaste

- 1-3 years 1.5 mg / 4-8 years 2.5 mg

Pea-sized amount

- Intake 0.42 mg - **1450 ppm** toothpaste (twice = 0.82 mg)
- Intake 0.1 mg - **400 ppm** toothpaste
- NHS:

Toothpastes containing 1,350 to 1,500ppm fluoride are the most effective. Your dentist may advise you to use higher-strength toothpaste if you or your child is at particular risk of tooth decay.

- **Children under 3 years old** should brush twice daily, with a smear of toothpaste containing at least 1,000ppm fluoride.
- **Children between 3 and 6 years old** should brush at least twice daily with a pea-sized amount of toothpaste containing more than 1,000ppm fluoride.
- **Adults** should brush at least twice daily with a toothpaste containing 1,350-1,500ppm fluoride.

Fluoride Toxicity

- Water
- Toothpaste
- Foods - pureed chicken, juices, salted fish, pasta
- Other toxins

Fluoride co-toxicity

- Fluoride plus alcohol and age - worse effect on gut and mitochondrial function
- Fluoride, arsenic, aluminium - affected brain in rodents - ameliorated by Vit C, D, E, calcium phosphate

Fluoride & Tamarind

- Boys with fluorosis who took 10 g of tamarind paste per day - significantly increased their excretion of fluoride compared to the controls



Tomato

Tomato

- Anti-oxidants,
- Lowers cholesterol
- Anticancer
- Carotenoids - Lycopene

Fermentation

- Needs digestion and ‘processing’ for lycopene to be released
- Yeasts and LAB allow release

Fermentation

LACTO-FERMENTED TOMATO POWDER FOR READY-TO-COOK MINCED MEAT PRODUCTS ENRICHMENT

- LAB used to ferment ready meal.
- The LAB starter increased the Beta-carotene and Lycopene by 45%

Fermented Tomato Juice

- *L. acidophilus*, *L. plantarum* and *L. casei*.
- 24 - 72 hours at 37 degrees C
- Acidity increase
- Sugar decrease

Algerian Fermented Tomato Juice

- Supermarket tomatoes
- Boiled, poured into jars, no salt, capped
- Kept at 25 degrees C for 6-12 months
- Bacteriocins produced by LAB

LAB

Biopreservatice

- LAB - *L. Brevis*
- Salmonella, Staphylococcus, Pseudomonas

Comment

- *L. Brevis* also has anti-fungal activity
- Moulds are normally stable at 100 degrees C.
- LAB therefore is a biopreservative

Summary

Fermented Ketchup

- Good for your health
- Lycopene & Lupeol
- Vitamins & minerals
- Tamarind helps detoxify from fluoride
- Ferment your tomatoes - anti-‘bad bug’ activity including moulds.



Thank you

www.doctorese.com

ese@doctorese.com