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Acetylsalicylate and salicylates in foods

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Abstract

Acetylsalicylic acid is effective in the prevention of cardiovascular disease. It was suggested that fruits and vegetables provide unknown amounts of acetylsalicylic acid. We could not find any acetylsalicylic acid in 30 foods using HPLC with fluorescence detection (detection limits: 0.02 mg/kg for fresh, and 0.2 mg/kg for dried products). We showed that urinary excretion of salicylates is a valid indicator for intake, and found a median salicylate excretion of 10 μmol (1.4 mg) in 24 h urine of 17 volunteers eating a variety of diets. Our data suggest that the content of (acetyl)salicylic acid of diets may be too low to affect disease risk. © 1997 Elsevier Science Ireland Ltd.

Keywords: Acetylsalicylate; Diet; Excretion; Salicylate

Acetylsalicylic acid is effective in the prevention of cardiovascular disease [1,2], and is associated with a decreased risk for colon cancer [3,4]. Levels of salicylates in foods are thus of interest, but data are scarce and controversial. Swain et al. suggested that a normal mixed Western diet provides 72–1448 μmol (10–200 mg) of natural salicylates, and 17 μmol (3 mg) acetylsalicylate daily [5].

We measured levels of total salicylates and acetylsalicylate in 30 foods using a specific and sensitive HPLC method with fluorescence detection. Detection limits were 0.1 $\mu\text{mol}/\text{kg}$ for fresh, and 1.4 $\mu\text{mol}/\text{kg}$ for dried products. Levels of total salicylate were 10–100 times lower than published previously: we found total salicylate levels of 0–0.7 $\mu\text{mol}/100\text{ g}$ in vegetables

and fruits, and 2–20 $\mu\text{mol}/100\text{ g}$ in herbs and spices. Levels of acetylsalicylate were lower than the limit of detection in all foods. Based on these results, we estimate that a Western diet provides about 0–15 $\mu\text{mol}/\text{day}$ of total salicylates.

We subsequently gave 66 μmol of pure salicylic or 58 μmol of acetylsalicylic acid to six healthy volunteers in a placebo controlled cross-over study, and recovered 77–80% in 24-h urine. Thus, urinary excretion is a valid indicator for intake.

We studied 24-h urinary excretion levels of salicylates in 17 volunteers eating a wide variety of diets, in order to estimate the true salicylate content of the diets. Median excretion of salicylates in urine was 10 $\mu\text{mol}/24\text{ h}$ (range 6–12). These results are in accordance with our food analyses data.

We conclude that levels of total salicylates and acetylsalicylate in diets are low, and probably insufficient to affect disease risk.

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