

Salicylates in foods

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To determine salicylate content, 333 food items were analyzed. Foods were homogenized with 25% sodium hydroxide, allowed to stand overnight, acidified with concentrated hydrochloric acid, and then extracted with warm diethyl ether over 5 hours. The extract was dried and taken up in dilute sodium bicarbonate solution for analysis. Salicylic acid was separated by high performance liquid chromatography and quantified by reading at 235 nm. Salicylic acid standards were used throughout to standardize extractions and analyses. This is the most comprehensive set of data on food salicylates yet published; extraction appears to have been more complete for some foods, giving higher values than those previously published. Most fruits, especially berry fruits and dried fruits, contain salicylate. Vegetables show a wide range from 0 to 6 mg salicylate per 100 gm food (for gherkins). Some herbs and spices were found to contain very high amounts per 100 gm, e.g., curry powder, paprika, thyme, garam masala, and rosemary. Among beverages, tea provides substantial amounts of salicylate. Licorice and peppermint candies and some honeys contain salicylates. Cereals, meat, fish, and dairy products contain none or negligible amounts.

The Feingold diet for treatment of hyperactivity in children was devised to exclude foods that contain artificial colorings, artificial flavorings, and natural salicylates. Exclusion of fruits and vegetables was based on German analyses of salicylate content done at the turn of the century. Information on the exact quantities of salicylate in foods has not been generally available, nor has it been

certain whether permitted foods are completely free of salicylate. There have been claims from fruit canners that some of the fruits excluded by Feingold did not contain appreciable salicylate.

Emphasis on salicylates in hyperactivity has decreased; there has been more interest lately in artificial colors (1). Meanwhile, interest has been growing in the role of salicylates in some cases of urticaria and of asthma. It has long been known that urticaria may follow the ingestion of acetyl salicylic acid medication, but it is now realized that salicylates in foods also can precipitate acute urticaria or exacerbate chronic urticaria.

Salicylate-sensitive urticaria was first noted by Calnan (2,3). Warin (4) in 1960 reported that 22 of 70 patients with chronic urticaria developed exacerbations after administration of aspirin. Moore-Robinson and Warin (5) reported an incidence of 22% of 228 patients, and Champion et al. (6) in 1969 found that 21% of 268 patients with chronic urticaria reacted to aspirin. James and Warin (7) in 1970 reported further investigations in a series of 100 patients with chronic urticaria. Ninety-six patients had been given test doses of aspirin in a "patient blind" manner; 37 of the 96 patients gave a positive reaction to the test dose.

Several authors reported that diets constructed to exclude salicylate may induce prolonged remission of urticaria in those patients who have shown a positive response to oral aspirin challenge (8-11). In 1972, Lockey (12) discussed the part played by salicylates in various foods. Seventy-five percent of the patients of Warin and Smith (11) either cleared or considerably improved after being on the appropriate diet for a 2-month period. This improvement was in line with the results obtained by others, including Michaelsson and Juhlin (8) in 1973 and Doeglas (9) in 1975. More recently, Ros et al. (13) reported their results with exclusion diets. Fifty-nine patients who reacted to salicylates, preservatives, and azo dyes were given a diet designed to reduce consumption of those items. This produced remission in 24% and improvement in 57%. Similarly, Juhlin (14) in 1981 reported that most patients improve when given a diet free from the chemicals to which they reacted.

It is well known that aspirin may exacerbate asthma. McDonald et al. (15) reported that 8 of 42 patients with severe asthma and no history of aspirin exacerbations reacted to an aspirin challenge of 540 mg.

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