

Organic anions and potassium salts in nutrition and metabolism.

Demigné C, Sabboh H, Puel C, Rémésy C, Coxam V.

The present review examines the importance of dietary organic anions in preventive nutrition. Organic anions are chiefly supplied by plant foods, as partially neutralised K salts such as potassium citrate, potassium malate and, to a lesser extent, oxalate or tartrate salts. Animal products may also supply K anions, essentially as phosphate, but also as lactate as a result of fermentative or maturation processes, but these K salts have little alkalinising significance. Citrate and malate anions are absorbed in the upper digestive tract, while a substantial proportion is probably metabolised in the splanchnic area. Whatever their site of metabolism, these anions finally yield KHCO_3 which is used by the kidneys to neutralise fixed acidity. This acidity essentially reflects the oxidation of excess S amino acids to sulfate ions, which is mainly related to the dietary protein level. Failure to neutralise acidity leads to low-grade metabolic acidosis, with possible long-term deleterious effects on bone Ca status and on protein status. Furthermore, low-grade acidosis is liable to affect other metabolic processes, such as peroxidation of biological structures. These metabolic disturbances could be connected with the relatively high incidence of osteoporosis and muscle-protein wasting problems observed in ageing individuals in Europe and Northern America. Providing a sufficient supply of K organic anions through fruit and vegetable intake should be recommended, fostering the actual motivational campaigns ('five (or ten) per d') already launched to promote the intake of plant foods rich in complex carbohydrates and various micronutrients.