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BEZBEDNOST I KVALITET HRANE / FOOD SAFETY AND QUALITY

U/O



## Sadržaj NaCl u mekim sirevima - aspekt bezbednost i zdravlje ljudi

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Kao jedna od najstarijih namirnica, sir zauzima važno mesto u ishrani ljudi zbog svoje hranljive vrednosti. U Republici Srbiji sirevi se proizvode industrijski, ali značajna količina se proizvodi u malim zanatskim pogonima i individualnim domaćinstvima. Na tržištu zelenih pijaca svakodnevno su prisutni sirevi proizvedeni na tradicionalan način od sirovog, ili kuvanog kravljeg mleka. Koagulacija se postiže dodavanjem sirila, bez komercijalnih starter kultura. Budući da se značajna količina mekih sireva proizvodi od sirovog mleka u skladu sa tradicijom, postoji mogućnost da sa mlekom u siru dospeju patogeni mikroorganizmi. So, natrijum hlorid (NaCl) doprinosi slanom ukusu i antimikrobnom delovanju u siru, ali visok sadržaj soli može da ima negativan efekat na zdravlje ljudi. Cilj ovog rada je bio da se odredi sadržaj NaCl u sirevima prisutnim na zelenim pijacama u Beogradu i da se ispita bezbednost u pogledu prisustva patogenih bakterija: *Listeria monocytogenes*, *Salmonella* spp. i koagulaza pozitivnih stafilocoka. Ispitano je ukupno 100 uzoraka sireva tradicionalno proizvedenih u individualnim domaćinstvima. Sadržaj NaCl je bio manje od 0,01 do 2,54% u sirevima proizvedenim od sirovog mleka i manje od 0,01 do 3,66% u sirevima od kuvanog mleka. Ni u jednom uzorku sira nisu dokazane *L. monocytogenes* i *Salmonella* spp. Koagulaza pozitivne stafilocoke su dokazane u 26 (26%) uzoraka sira i broj se kretao od 2 to 5.60 log cfu/g. Sadržaj NaCl u mekim sirevima u Srbiji omogućava unos manji od dnevne doze, koju preporučuje WHO (World Health Organization), ali je pogodovao rastu koagulaza pozitivnih stafilocoka. Sirevi u kojim je broj koagulaza pozitivnih stafilocoka bio veći od 5 log cfu/g mogu da predstavljaju rizik po zdravlje, ako je enterotoksin prisutan u dovoljnoj količini da izazove intoksikaciju konzumenta.

### Sodium chloride content in soft cheeses with respect to food safety and public health

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**Abstract.** As one of the oldest food products, cheese takes an important place in human diets due to its nutritional value. In Serbia, cheeses are produced industrially, but significant proportions are produced in small-scale plants and in individual artisanal households. At green markets, cheeses daily present are produced from raw or cooked cow's milk in a traditional manner in households. The coagulation is achieved by addition of rennet, without addition of any commercial starter cultures. Since significant quantity of soft cheeses is produced from raw milk in accordance with tradition, there is a possibility the pathogenic microorganisms pass into cheese from raw milk. Salt (NaCl) contributes the salty taste and an antimicrobial effect to cheese, but too high a salt intake can have negative effects on human health. The aim of this research was to determine the NaCl content in cheeses available at Belgrade's green markets and to assess their safety with regard to the presence of pathogenic bacteria: *Listeria monocytogenes*, *Salmonella* spp. and coagulase-positive staphylococci. Altogether, 100 cheeses traditionally produced in individual artisanal households were studied. The NaCl content ranged from less than 0.01 to 2.54% in raw milk cheeses and less than 0.01 to 3.66% in heat-processed milk cheeses. *L. monocytogenes* and *Salmonella* spp. were not detected in the examined cheeses. Coagulase-positive staphylococci were detected in 26 (26%) of cheeses, with numbers ranging from 2 to 5.60 log cfu/g. The NaCl content in Serbian soft cheeses would provide a lower dose than that recommended by WHO for daily intake, but it was favourable for growth of coagulase-positive staphylococci. The raw milk cheeses in which the number of coagulase-positive staphylococci exceeded more than 5 log cfu/g could be a risk to human health if enterotoxin is present in amounts sufficient to cause intoxication of consumers.