

UTICAJ GRANICE ODREĐIVANJA NA POZITIVAN NALAZ *LISTERIA MONOCYTOGENES* U UZORCIMA MLIJEKA

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Sažetak: Bakterija *Listeria monocytogenes* unesena hranom izaziva bolest listeriozu, na koju su osjetljive visoko rizične grupe populacije (trudnice, djeca, onkološki bolesnici,...). Simptomi listerioze su vrlo raznoliki, mogu da traju od nekoliko dana do nekoliko nedjelja, a u nekim slučajevima se završavaju smrtnim ishodom. Prisustvo listerije u hrani obično se povezuje za hranom spremnom za konzumaciju (RTE), nepasterizovanim mlijekom, mliječnim proizvodima od nepasterizovanog mlijeka, itd. Za određivanje granice detekcije (LOD) bakterije *Listeria monocytogenes* pripremljena su četiri nivoa vještačke kontaminacije inicijalnog razrjeđenja uzoraka sterilizovanog visokom temperaturom (UHT) mlijeka, dostupnog na tržištu. Predbogaćenje i bogaćenje do presijavanja na dve čvrste podloge provedeno je prema modifikovanoj metodi ISO 11290-1:2017. Presijavanje na ALOA podlogu provedeno je samo nakon bogaćenja, a paralelno je provedeno i dodatno presijavanje na krvne ploče. Pozitivni nalazi, broj kontaminiranih uzoraka i nivo kontaminacije obrađeni su u PODLOD_ver11.xls EXCEL programu za procjenu POD funkcije i LOD kvalitativnih metoda za mikrobiološka ispitivanja, od Wilrich i Wilrich. Dobijeni rezultati pokazuju prihvatljivu statistiku efekta matriksa, LOD50% je 0,403 [0,181; 0,899] cfu/inicijalnom razrjeđenju uzorka, odnosno LOD95% je 1,742 [0,781; 3,885] cfu/inicijalnog razrjeđenja uzorka. Pozitivni nalazi na ALOA podlozi u potpunosti su ispraćeni nalazima na krvnim pločama, te se dobijene granice određivanja odnose na metodu izolacije listerije iz mlijeka za svaku od podloga. Dobijeni rezultati su također doprinos boljem razumijevanju niskog nivoa kontaminacije i neophodnosti ispitivanja najmanje pet jedinica istog uzorka zbog otkrivanja *Listeria monocytogenes*.

Ključne riječi: *Listeria monocytogenes*, mlijeko, granica određivanja (LOD)

THE IMPACT OF LEVEL OF DETECTION ON POSITIVE FINDING OF *LISTERIA MONOCYTOGENES* IN MILK

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Abstract: The bacterium *Listeria monocytogenes* ingested with food causes the so-called listeriosis, to which groups of the population (pregnant women, children, oncology patients, etc.) are susceptible. The symptoms of listeriosis are very diverse, they can last from days to several weeks, and in some cases, lead to death. The presence of listeria in food is usually associated with ready-to-eat foods, unpasteurized milk, dairy products made from unpasteurized milk, etc. To determine the limit of detection (LOD) of the bacterium *L. monocytogenes*, four levels of artificial contamination of the initial dilution of ultra-high temperature processed milk (UHT milk) available on the market were prepared. Pre-enrichment and enrichment until streaking on the two solid media were performed according to the modified method ISO 11290-1:2017. Streaking on the ALOA medium was performed only after the enrichment, and the additional streaking on Blood agar plates was performed in parallel. Positive findings, the number of contaminated samples, and the contamination level were processed using the calculation program PODLOD_ver11.xls EXCEL to estimate the POD function and the LOD of a qualitative microbiological measurement method by Wilrich and Wilrich. The obtained results show comprehensible matrix effect statistics, the LOD₅₀ is 0,403 [0,181; 0,899] CFU/initial sample dilution and the LOD₉₅ is 1,742 [0,781; 3,885] CFU/initial sample dilution. The number of positive findings on the ALOA medium is similar to the findings on the Blood agar plates, and consequently, the obtained LOD refers to the method of isolating *Listeria* from milk for each of the media used. The obtained results contribute to a better understanding of the low level of contamination and the need to test at least five units of the same sample for the detection of *L. monocytogenes*.

Key words: *Listeria monocytogenes*, milk, the limit of detection (LOD)