

CAMPYLOBACTER FETUS SUBSP. FETUS ENUMERATION ON DIFFERENT MEDIA

CAMPYLOBACTER FETUS SUBSP. FETUS SKAITA NOTEIKŠANA DAŽĀDĀS BAROTNĒS

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ANOTĀCIJA. Darba mērķis bija noteikt *Campylobacter fetus* subsp. *fetus* augšanu atšķirīgās barotnēs dažādās atmosfērās. Pētījumā izmeklējamā kultūra tika iegūta no references celma ATCC 27374, kas inkubētas - 48 stundas $37\pm 0.5^{\circ}\text{C}$ mikroaerobā vidē. Rezultāti rāda, ka *Campylobacter fetus* subsp. *fetus* vislabāk aug uz Kolumbijas asins agara. Izvēloties selektīvas barotnes, kas paredzētas tieši *Campylobacter fetus* subsp. *fetus* izolēšanai, mCCDA un NA, labāku baktēriju augšanu novēro uz mCCDA barotnes. Datu statistiskā analīze tika veikta pēc t-testa ar ticamību 95%.

KEY WORDS: Campylobacter, fetus, recovery, media, enumeration

INTRODUCTION. *Campylobacter fetus* is gram-negative, curved or spiral, microaerophilic bacteria that cause a disease in cattle characterized primarily by sepsis, late embryonic death, infertility, a protracted calving season, and occasionally abortion. The aim of the study was to determine *Campylobacter fetus* subsp. *fetus* recovery rate on different isolation media in different atmospheric conditions.

MATERIALS AND METHODS. Reference strain of *Campylobacter fetus* subsp. *fetus* ATCC 27374 was used. After primary incubation on two (sample A and B) Columbia blood agar (CA) (Oxoid; Basingstoke, Hampshire, UK) plates 10 μl of *Campylobacter fetus* subsp. *fetus* was transferred into 10ml of peptone water (Oxoid) and vortexed until sample was dissolved completely to acquire dilution 1:1000 or 10^{-3} . Following that serial dilution 10^{-4} till 10^{-8} was prepared. After serial dilution 1ml of 10^{-7} and 10^{-8} dilution was transferred to two plates of Columbia blood agar (Oxoid), modified charcoal cefoperazone deoxycholate agar (mCCDA) (Oxoid) with Campylobacter selective supplement (Oxoid), nutrient agar I (NA) (Sifin; Berlin, Germany) with added Campylobacter growth and selective supplement (Sifin), and potato starch (MilliporeSigma; USA) 1.5 g/1l. All plates were placed in anaerobic jars (Oxoid) and in order to provide microaerobic growth conditions CampyGen 3,5l (Oxoid) gas pack was added to the jars. Additionally, plates with *Campylobacter fetus* subsp. *fetus* with dilution 10^{-7} on mCCDA and CA was placed in candle jar with lit candle to reduce O_2 level. All plates were incubated for 48 h at $37\pm 0.5^{\circ}\text{C}$. After incubation enumeration of bacterial colonies was performed. Statistical analysis (t-test) was performed to determine statistically significant differences at 95% confidence level.

RESULTS. After 48 h of incubation in $37\pm 0.5^{\circ}\text{C}$ on CA plates in sample A and B $14.87*10^7$ (CFU/ml), $11.82*10^8$ (CFU/ml), and $15.80*10^7$ (CFU/ml), $11.93*10^8$ (CFU/ml) cells were recovered, respectively. On mCCDA in sample A and B $14.11*10^7$ (CFU/ml), $11.04*10^8$ (CFU/ml), and $14.32*10^7$ (CFU/ml), $10.58*10^8$ (CFU/ml) cells were recovered, respectively. On nutrient agar I (NA) in sample A and B $10.62*10^7$ (CFU/ml), $2.4*10^8$ (CFU/ml), and $11.21*10^7$ (CFU/ml), $6.76*10^8$ (CFU/ml) cells were recovered, respectively. In candle jar on CA $13.59*10^7$ (CFU/ml) and on mCCDA $0.63*10^7$ (CFU/ml) were recovered. Significantly

higher ($p < 0.05$) recovery rate was observed in CA compared to mCCDA and NA, as well in mCCDA compared to NA ($p < 0.05$).

CONCLUSIONS. For *Campylobacter fetus* subsp. *fetus* cultivation CA provides highest recovery rate. In case of selective media mCCDA is more superior than NA.

Candle jar can be used to provide microaerophilic conditions for *Campylobacter fetus* subsp. *fetus* cultivation on CA.