A PRACTICAL VALUE OF COWS WHOLE MILK ACTIVE ACIDITY

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Summary. Milk active acidity evaluation (hydrogen ions concentration) is considered to be one of the main methods for characterization of whole milk. Commmercial indicators intended for acidity evaluation do not correlate with somatic cell count (SCC) and clinical state of the animal. This research was aimed to specify correlation of active milk acidity with milk composition, individual conductance and SCC, and to evaluate indicative testers „pH-Fix 6,0-7,7“ and „Pehanon“, which are widely used for milk active acidity determination. The research was carried out at the Practical Training and Experimental Center and the Reproductive Laboratory of Lithuanian Veterinary Academy. Fifty samples from healthy cows and fifty samples from cows with mastitis were taken. Milk composition and SCC were determined according to generally accepted methods. Milk active acidity was measured by indicative testers „pH - Fix“ and „Pehanon“. Each tester was used for 100 samples. In order to control milk active acidity evaluation all samples were measured by a pHmeter WTW 526. The resistance of milk was measured by an analogous megaommeter BY-15.

A tendency of stronger correlation between active milk acidity and SCC in milk samples was observed in case of mastitis: $r = 0.21$ ir 0.22 ($p < 0.05$). It can also be stated, that the resistance of milk sample, particularly in cows with mastitis, correlated with SCC: $r = -0.41$ ($p < 0.05$). As SCC correlated with the acidity, it can be concluded, that milk active acidity is related with the clinical state of an udder. Nevertheless, active acidity defined by a pHmeter weaker correlates with milk protein and lactose in comparison to this parameter measured by indicative testers : $r = -0.44$*, $r = 0.70$** (*$p < 0.05$, ** $p<0.01$). The concentration of hydrogen ions in healthy and sick with mastistis cows measuring milk samples by „pH-Fix“ indicator differed from this parameter measured by a pHmeter by 2,75% ($p<0.01$) and measuring the parameter by an indicator „pehanon“ – by 4,82%, respectively. More objective pH parameters were obtained in case of an indicator „pH-Fix“. The particular conductance of milk is considered to be more discreet sign of mastitis as in sick and healthy cows milk active acidity differs less than milk particular acidity: 3,56%* and 92,3%** (* $p<0,01$, **$p<0,05$). The single pH parameter can not be considered fully discreet characteristic of milk quality.

Keywords: milk active acidity, milk composition, indicator.