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Effect of Raw Milk Obtained From Holstein Cows on Full Fat Yoghurt Production

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----------*ABSTRACT*----------
In the research, 10 Red Holstein and 10 Black Holstein cow milk samples were used. The observed levels of milk components were compared with the reference values (min. fat 3.25%, min. non-fat solid 8.25%) in quality raw milk used for full fat yoghurt production using one-sample t test. The results desired significant differences between values of the milk samples in Black and Red Holstein cows and the acceptable reference values for fat and non-fat solid of quality raw milk. Our results show that dairy cows have a better genotype for the full fat yoghurt production because of high parameter levels in their milk. Maximum levels of milk fat and non-fat solid are essential for obtaining the desired dairy production. Further researches are needed to improve the interpretations about milk parameters associated with full fat yoghurt production in dairy cow breeds using statistical control methods such as one sample t test between reference and observed milk parameters.
Keywords: *Holstein, cow, milk, yoghurt*

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I. INTRODUCTION

The quality of the raw milk is affected by animal factor [1,2], machine milking [3-5], suckling [6] and lactation stage [7], etc. Milk components are particularly important when there is the possibility to link a product to a breed and to a region. Breed is the main genetic aspect affecting milk quality characteristics and, consequently, dairy technology and quality of products [8,9]. Differences in level of production and chemical and technological properties of milk have been widely demonstrated among dairy cattle breeds but not non-dairy breeds. The Holstein Friesian (HF) is well known dairy breed for milk production, low protein and fat content of milk [10]. Studies associated with statistical control of milk quality have increased in recent years. However, there was no statistical knowledge on biochemical parameters of Red and Black Holstein cows for quality full fat yoghurt production. Only few studies have investigated the effect of breed of cows on quality of dairy product. The aim of this study was to investigate the effect of cow breed on milk parameters for quality full fat yoghurt production.

II. MATERIAL AND METHODS

Red Holstein (10 cows) and Black Holstein (10 cows) milk samples for analysis were collected and kept at 4ºC and 24 h. Cow milk samples were analyzed for fat and non-fat solid using the Milkana milk analysis device. The data were subjected to the normal distribution test before statistical methods were applied. The data were presented as mean ± S.D. The rates of milk parameters were compared with the reference values [11] of components (least fat 3.25%, least non-fat solid 8.25%) using one-sample t test. Comparisons were done with help of the SPSS [12].

III. RESULTS AND DISCUSSION

The statistical results for milk parameters of Black and Red Holstein cows are presented in Table 1.

Table 1. The statistical control of parameters for full yoghurt making standards

Reference values of quality milk for Full fat yoghurt making standards		Black Holstein	Red Holstein
Fat (min.), %	3.25	3,65±0,14 **	3,72±0,19 **
Non-fat solid (min.), %	8.25	8,45±0,08 *	8,42±0,02 *

** P<0.01, * P<0.05,

The analysis using one sample t-test revealed significant differences between observed values for fat and non-fat solid of both group and the reference values of both parameters, as shown in Table 1. Comparing the mean values for investigated milk ingredients, it seems obvious the differences in fat and non-fat solid content between standard values for quality full yoghurt making and observed values in Holstein (Red and Black) cows. According to these results, raw milk obtained from both Holstein breeds is higher and favorable for quality full fat yoghurt production. Deviations from the standard for fat and non-fat solid values in Holstein cows may be caused from differences in metabolism of breeds. Garel and Coulon [13] reported only small differences in biochemical parameters of typical Saint-Nectaire dairy products produced by different breed, whereas Martin et al. [14] did not find any difference in quality of dairy products among different cattle breeds. Auldist et al. [15] found no difference in dairy product composition between Friesian and Jersey breeds.

Acquiring knowledge associated with milk components to increase production of milk with maximum rates of milk fat and non-fat solid is fundamental for obtaining the quality yoghurt production. Therefore, further researches are needed to improve the interpretations about milk components associated with yoghurt making in dairy and non dairy cow breeds.

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