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Antimicrobial, antioxidative, phytochemical and functional characteristics of the extracts of some plants and spices seeking to adapt them as a potential source of biologically active substances for the safety of dairy products

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In order to enrich the dairy food with natural, healthy substances we selected plant extracts that have antioxidant, antimicrobial properties, contain essential oils and have positive effect on human body. The sensory properties of the product are improved. The aim of this study is to evaluate antimicrobial, antioxidative, phytochemical and functional characteristics of the extracts of some plants and spices seeking to adapt them as a potential source of biologically active substances for the safety of dairy products. We used Chinese hibiscus and honeybush plant for preparation of extracts with different methodology and polarity of solvents and evaluate their antimicrobial and antioxidant activity in model systems. Measurements of antioxidant and radical scavenging activity and antimicrobial properties of plant extracts were produced. The results of our study revealed that extracts are potential sources of natural antioxidants and they would be well accepted by consumers if applied by the food industry to replace synthetic antioxidants. Antioxidant activity of Honeybush extract (ORAC Assay, DPPH radical scavenging assay and ABTS radical cation decolorization assay) was the highest. The highest antibacterial activity was determined for Chinese hibiscus acetone and ethanol extracts. Chinese hibiscus extract could be used in curd production as natural antimicrobial additives against *L. monocytogenes, S.aureus and E.coli.* Sensory indices of the curd with plant extracts additives were acceptable for consumption. Addition of honeybush extract had the greatest impact on flavor properties due to well-expressed pleasant taste, odor, appearance and antioxidant properties, increasing functionality of the product.

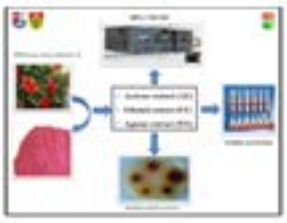

Figure 1: The design of the study.

Recent Publications

1. Rokaitytė A, Zaborskienė G, Mačionienė I, Rokaitis I and Sekmokienė D (2016) Combined effect of lactic acid, bioactive components and modified atmosphere packaging on the quality of minced meat. Czech Journal of Food Sciences (CJFS) 34:52-60.
2. Liutkevičius A, Speičienė V, Alenčikienė G, Mieželiene A, Narkevičius R, Kaminskas A, Abaravičius J A, Vitkus D, Jablonskienė V and Sekmokienė D (2016) Fermented buttermilk-based beverage: impact on young volunteers' health. Czech Journal of Food Sciences (CJFS) 34:143-148.
3. Šlapkauskaitė J, Sekmokienė D, Kabašinskienė A, Bartkienė E, Juodeikienė G and Šarkinas A (2016) Influence of lactic acid bacteria–fermented *Helianthus tuberosus L.* and *t* on quality of milk products. CYTA: Journal of Food 14:482-488.
4. Kabašinskienė A, Liutkevičius A, Sekmokienė D, Zaborskienė G and Šlapkauskaitė J (2015) Evaluation of the physicochemical parameters of functional whey beverages. Food Technology and Biotechnology 53:110-115.

Biography

Dalia Sekmokiene is Full Professor in Lithuanian University of Health Sciences, Department of Food Safety and Quality. During her career she was involved in different scientific projects regarding functional food investigations. EU funded projects Milk production and processing at small dairy farms.

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