# Project summary

Project includes activities in the field of technology of functional dairy products with high nutritional value, expressed therapeutic, antioxidant and antimicrobial properties, in order to improve milk production, to establish of GAP on farms and to develop GIS database. Development of methods for testing the presence of new pathogens and viruses, improvement of existing sensory testing methods and introduction to new methods (HRGCMS) for measuring the concentration levels of dioxins, PCBs and PAHs in meat products are planned. Aiming to improve bee breeding, conservation and protection of indigenous ecotypes in Serbia, the queen bee line for mass reproduction will be obtained by classical and geometric morphometric analysis of genetic diversity of honey bees with separated ecotypes. In order to determine the presence of additives in foodstuffs of animal origin which are labelled as allergens in EU, the development and validation of methods for their detection are planned. The presence of toxigenic fungi and some mycotoxins, then levels of mercury, lead, cadmium, fluoride, PCBs and PBDEs in feed and food of animal origin will be determined. Residual concentrations of antimicrobial agents in edible tissues of animals honey and eggs will be measured, to calculate the degree of exposure and risk, examine the mechanism of action and interaction and to characterize the risk in relation to the reference values. Within the project, improvement of traditional fermented dairy products and meat, defining of GAP and establishing of SOP are planned, as well as determination of conditions for bacteriocin activity and applications in order to extend the durability of the product. In order to propose the most appropriate treatment of meat industry wastewater, the analysis of wastewater for basic quality parameters and determination of hazardous and "emerging" contaminants using GC/MS and UPLC/MS2 analytical methods will be conducted. Based on the results, techno-economic study of meat and milk industry development will be prepared.

Keywords: functional products, meat, milk, allergens, safety, risk assessment

# Sažetak projekta

U okviru projekta realizuju se istraživanja iz oblasti tehnologije funkcionalnih mlečnih proizvoda visoke nutritivne vrednosti, izraženih terapeutskih, antioksidativnih i antimikrobnih svojstava, sa ciljem unapređenja proizvodnje mleka, uspostavljanje GAP na farmama i GIS baze podataka. Planiran je razvoj metoda za ispitivanje prisustva novih patogena i virusa, usavršavanje postojećih senzornih metoda i uvođenje novih metoda (HRGCMS) za ispitivanje nivoa koncentracije dioksina, PCB kongenera i policikličnih aromatičnih ugljovodonika u proizvodima od mesa. Sa ciljem unapređenja uzgoja pčela, očuvanja i zaštite autohtonosti ekotipova u Srbiji, primenom klasične i geometrijske morfometrijske analize genetske raznovrsnosti medonosnih pčela sa izdvojenim ekotipovima, proizvešće se pčelinje matice za masovnu reprodukciju. **Kako bi se ispitalo prisustvo aditiva u namirnicama animalnog porekla koji se u EU označavaju kao alergeni, planiran je razvoj i validacija metoda za njihovu detekciju.** U stočnoj hrani i namirnicama animalnog porekla dostupnim na tržištu, pratiće se prisustvo toksigenih plesni i pojedinih mikotoksina, zatim žive, olova, kadmijuma, fluorida, PCB i PBDE. U jestivim tkivima životinja, medu i jajima određivaće se rezidualne količine antimikrobnih lekova, kako bi se procenio stepen ekspozicije i rizika, ispitao mehanizam dejstva i interakcija i izvršila karakterizacija rizika u odnosu na referentne vrednosti. Tokom realizacije projekta planirane su aktivnosti na polju unapređenja tradicionalnih fermentisanih proizvoda od mleka i mesa, definisanja GAP i uspostavljanja SOP, kao i utvrđivanja uslova za aktivnost bakteriocina i primenu u cilju produženja održivosti proizvoda animalnog porekla. Sa ciljem davanja predloga za primenu odgovarajućeg tretmana otpadnih voda mesne industrije, sprovodiće se analiza otpadnih voda industrije mesa na osnovne parametre i na prisustvo hazardnih i „emerging“ kontaminanata primenom GC/MS i UPLC/MS2 analitičkih metoda. Na osnovu rezultata dobijenih u okviru projekta, biće urađena tehnoekonomska studija razvojna industrije mesa i mleka.

Ključne reči: funkcionalni proizvodi, mleko, meso, alergeni, bezbednost, procena rizika

# Selected results/Odabrani rezultati

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