Kratek opis usposabljanja mladega raziskovalca (*Short description of the Young Researcher's training)*

1. Raziskovalna organizacija (*Research organisation)*:

Univerza v Ljubljani, Biotehniška fakulteta, Oddelek za živilstvo University of Ljubljana, Biotechnical Faculty, Department of Food Science and Technology

2. Ime, priimek in elektronski naslov mentorja (*Mentor's name, surname and email*):

Sonja Smole Možina, sonja.smole@bf.uni-lj.si

3. Šifra in naziv raziskovalnega področja (*Research field*):

4.06 Biotehnologija 4.06 Biotechnology

4. Kratek opis usposabljanja mladega raziskovalca (*Short description of the Young Researcher's training)*:

Navedite tudi morebitne druge zahteve, vezane na usposabljanje mladega raziskovalca (npr. znanje angleškega jezika, izkušnje z laboratorijskim delom, potrebne licence za usposabljanje…).

Usposabljanje MR bo potekalo na Kat. za biotehnologijo, mikrobiologijo in varnost živil. Vsebinsko se bo navezovalo na aktualni razisk. program (Bioteh. in mikrob. živil in okolja) in tekoče projekte skupine, predvsem na medcelično signaliziranje (QS) bakterij *Campylobacter jejuni*, glavnih bakterijskih povzročiteljev mikrobnih okužb s hrano. Gibljivost, adhezija in tvorba biofilma so lastnosti, ključne za preživetje in širjenje tega patogena v živilski proizvodni verigi. Njihovo izražanje je regulirano s QS. Na to pa vplivajo tudi zunanji dejavniki, ki smo jih odkrili med učinkovinami naravnih rastlinskih izvlečkov in eteričnih olj. Zato so potencialno uporabni za obvladovanje te bakterije v okolju pridelave in predelave hrane. Program MR predvideva preučitev konkretnih primerov učinkovitosti fitokemijskih pripravkov in čistih učinkovin na bakterije *C. jejuni* na celično-fiziološkem, molekularno-biološkem in kemijskem nivoju z mikrobiološkimi, mikroskopskimi, molekularno-genetskimi in kemijsko-analitskimi metodami v laboratorijih na BF-UL in drugih institucijah (predvidoma UNI-Graz, Avstrija in Iowa Univ., ZDA). Zato mora kandidat dobro obvladati angleški jezik, prednost pa imajo tisti z izkušnjo dela v raziskovalnem laboratoriju v tujini.

Young Researcher's training will be realized at the Chair for Biotechnology, Microbiology and Food Safety. It will be linked to current research programme (Biotechnology and Microbiology of Food and Environment) and projects, especially cell-to-cell communication (quorum sensing, QS) of *Campylobacter jejuni*, the leading cause of bacterial gastroenteritis in developed countries. Phenotypic features, like motility, adhesion and biofilm forming ability are crucial for its survival and spread in the food chain. Their expression is regulated by bacterial QS, which is influenced by external factors – we found them also in natural plant extracts and essential oils. This makes them useful for bacterial control in the food chain. Young Researcher's training will include studies of phytochemical formulations and pure bioactive compounds and their impact on *C. jejuni* QS on celular, physiological, molecular-biological and chemical level. The methods will include microbiological, microscopic, molecular-genetic and chemical analytical tools in the

laboratories of BF-UL and other cooperating Institutions (UNI-Graz, Iowa Univ., USA). Thus, good English language is required and experience with research work abroad is recommended.