

PPP 4

Smrt antibiotika: Da li zemljišni mikroorganizmi još uvek mogu nešto da ponude?

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Antibiotici predstavljaju lekove koji spasavaju život i koji su revolucionirali medicinu, počevši od otkrića penicilina 1928. godine. Od otkrića penicilina, za kliničku primenu je razvijen veliki broj efikasnih antibiotika, čija je primena uvek ograničavana pojavom rezistentnih sojeva. Trenutno se suočavamo sa problemom panrezistentnih patogena otpornih na antibiotsku terapiju, a sa vrlo malo potencijala za razvoj novih terapeutika koji bi zamenili antibiotike prema kojima mikroorganizmi postaju sve rezistentniji.

Mikrobiološki resursi, posebno zemljišni izolati, tradicionalno su nenadmašiv izvor jedinjenja za razvoj novih lekova. Sa razvojem sofisticiranih funkcionalnih testova, i fenotipskih pretraživanja u kojima se koriste cele ćelije ili model organizmi, a u kombinaciji sa genomskim i *in silico* pristupima, ovi resursi, pogotovu sojevi roda *Streptomyces*, i dalje će nastaviti da daju doprinos u smislu novih bioaktivnih jedinjenja, što je pokazano na primeru pretraživanja sojeva zbirke zemljišnih izolata Laboratorije za molekularnu genetiku i ekologiju mikroorganizama (IMGGI, UB).

The death of antibiotics: Do soil microorganisms still have something to offer?

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Antibiotics are essential life-saving drugs that revolutionized medicine, starting with the discovery of penicillin in 1928. Since the discovery of penicillin, a number of highly effective antibiotics have been discovered and developed for clinical use in the treatment of bacterial infections. However, at present we are facing the threat of 'super-bugs' resistant to antibiotic therapy with very little in the pharmaceutical pipeline to replace the antibiotics to which microorganisms are becoming resistant.

On the other side, microorganisms have been, for decades, one of the most important sources for the discovery of new antibiotics. With the development of sophisticated functional screens in combination with genomic and *in silico* approaches, soil microorganisms and communities still hold the promise for the delivery of novel bioactive scaffolds. The highlights of the screen of a number of soil isolates, mainly *Streptomyces* spp. from the Laboratory for Microbial Molecular Genetics and Ecology (IMGGE, UB) provide such evidence.

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