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Connection Between Compounds Presented in Food and Ciprofloxacin Resistance

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Antibiotic resistance has become a serious problem for human health. In general the primary cause of resistance is mutations. *Salmonella typhimurium* is foodborne pathogen which colonizes intestine, where it could get into contact with mutagens presented in some food-stuffs or generated during the food processing. According to this fact we have focused on the effect 2-nitrofluorene (typical carcinogenic nitropolycyclic aromatic hydrocarbon) on the development of ciprofloxacin resistance in *Salmonella typhimurium*. Frequency of mutations leading to ciprofloxacin resistance was significantly increasing with increasing concentration of mutagen, 8-fold over spontaneous background. We have found out that this compound caused point mutations in *gyrA* gene of gyrase, as well as repression of OmpF porin synthesis. On the other hand we have detected positive results with some phenolic compounds (vanillin, vanillic acid, quercetin, lignin) which are ubiquitous in plant foods. These compounds reduced number of resistant colonies generated by spontaneous and induced mutations.

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