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**The antagonistic effect between Abamectin degrading bacteria, *Staphylococcus nepalensis* and *Bacillus thuringiensis***

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Basic ecological concepts govern the composition and the functional relationships among microorganisms of a particular ecosystem of interest. Antagonism is one such functional relationship among bacteria. A bacterium that is antagonistic to another is capable of producing molecules with different structures, cellular targets, spatial range, and mode of action that are harmful to other organisms in the same niche. Even though the antagonism is beneficial to the survival of a bacterium when considering processes such as bioremediation having multiple bacteria capable of performing the same or cooperative objectives, this effect is detrimental. *Staphylococcus nepalensis* and *Bacillus thuringiensis* are two Abamectin degrading bacteria. To test whether there is an antagonistic interaction between *S. nepalensis* and *B. thuringiensis*, the growth compatibility assay was performed using salt yeast extract (MSYE) agar plates supplemented with Abamectin (25 mgL<sup>-1</sup>). Parallel streak lines were made using previously isolated, Abamectin degrading, *S. nepalensis* and *B. thuringiensis* cultures and their identification was confirmed by biochemical tests. Plates were incubated for 72 hours at 37 °C. Growth inhibition zone encircling the *S. nepalensis* streak was observed after the incubation period. Results from this test were confirmed by measuring the Optical Density (OD) measurements at 600 nm, of MSYE broth cultures of *S. nepalensis*, *B. thuringiensis* and a combination of both. Inoculated broths were incubated in a shaker incubator (150 rpm, at 30 °C) for 72 hours, and growth was monitored by measuring OD at 24-hour intervals. OD measurements 72 hours after the inoculation (*S. nepalensis* - 0.19133, *B. thuringiensis* - 0.12500, Mixed culture - 0.12000) indicated the fact that the growth of pure cultures is higher, compared to that of the mixed culture of both organisms. Accordingly, the results of OD measurements demonstrated an antagonistic effect between *S. nepalensis* and *B. thuringiensis*. As claimed by the results of both tests it is not applicable to use them together to treat Abamectin-associated pollutions. They can still be successfully applied individually as pure cultures. However, both organisms should not be applied to the same site, at the same time, as it would be inimical towards their bioremediation capability.

**Keywords:** Antagonism, Pure culture, Mixed culture, Optical density, Bioremediation