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Diversity of Marine Microbes Using Non-Cultivating Method

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Most of the antimicrobial or anti-infective compounds are natural products derivatives, which are used to make medical compounds. So, there are much effort to discover novel compounds. However, there has been a decrease in discoveries recently, because the number of species that can be cultivated in laboratories is less than 1% of the total. The other 99% of species imply the vast possibility of novel products that can be discovered. Our objective in this experiment was to extract genomic DNA from marine microbes. We directly extracted microbial DNA from marine and performed DGGE (denaturing gel gradient electrophoresis) with the PCR products of it. (DGGE separates various DNAs by the GC content of the DNA fragments.) Then, we inserted the PCR products into the T-vectors propagated in bacterial strains such as *E. coli*. Then we extracted DNA from transformed *E. coli*. Through DNA sequencing, we investigated bacterial composition - including unknown bacteria - and made a *E. coli* library containing genomic fragments of DNA. We also made phylogenetic tree based on the data we investigated.