Decomposition of Polystyrene Using Citrus D-Limonene

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Due to the accumulation generated by expanded polystyrene (EPS) materials such as plates, glasses and others disposable of single use (those delivered in supermarkets, restaurants, convenient stores, and other establishments), they will remain in the environment for hundreds of years. Its durability is a serious problem for the environment and health. In view of the urgent search for alternatives to this problem at the local, regional, national and global levels, the research team places the appropriate importance in solving the problem by offering an alternative that helps reduce solid waste from expanded polystyrene (EPS); for this, the team has developed a research project that proposes the degradation of expanded polystyrene (EPS) using the D-limonene present in the citrus peel, specific for this research, this essential oil is extracted in the laboratory of the Educational Institution N ° 0005 "Antonio Raymondi", according to experimental tests in a pilot test, the appropriate proportion was obtained to achieve the degradation of polystyrene, which is 2/30 by mass, of expanded polystyrene (EPS) / citrus D-limonene. All types of expanded polystyrene (EPS) disposable materials and the D-limonene obtained from the citrus peel were used for the development of this research, and some laboratory materials were tested in different proportions with the same conditions, reaching thus good results with the use of the solvent extracted from the citrus peel, achieving 100% degradation. Finally, it was concluded and validated that expanded polystyrene (EPS) physically decomposes with citrus D-limonene without damaging its molecular structure, therefore, it can be reused.

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