

Editorial

The one-carbon pollutants to be discussed in the focus section of this issue have at least two properties in common that set them apart from other undesirable organic waste compounds. The first of these concerns their origin in the environment which is due to both natural processes and industrial synthesis. Most toxic one-carbon pollutants are products of abiotic processes in nature and/or of microbial metabolism. At the same time they are industrial chemicals of widespread use. Their natural occurrence has led to the evolution of a variety of microbial detoxification or degradation systems. With a view to environmental biotechnology one may thus state that it is not so much the availability of microbial catalysts which limits control of pollution by these compounds, but rather the application of microorganisms under controlled conditions to prevent the escape of toxic C₁-compounds into the environment. Volatility is the second common property of one-carbon pollutants. It leads to the rapid distribution of these compounds from point sources and to their dispersal from aquatic and terrestrial compartments to the atmosphere. The significance of some one-carbon pollutants as atmospheric trace gases with deleterious effects on the climate of the earth is well-publicized. It has added a new dimension of importance to microbial metabolism as a sink for one-carbon compounds with pollution potential.

The four contributions in the present focus section review recent developments in the understanding of microbial one-carbon metabolism. The articles emphasize different aspects of this topic, ranging from biocatalysis to genetics and ecology. This results in a stereoscopic view of the subject which, I hope, the reader will find illuminating. I would like to thank the contributors for accepting the invitation to contribute and, last but not least, for delivering their manuscripts on schedule.

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