Microbiology Comment provides a platform for readers of *Microbiology* to communicate their personal observations and opinions in a more informal way than through the submission of papers.

Most of us feel, from time to time, that other authors have not acknowledged the work of our own or other groups or have omitted to interpret important aspects of their own data. Perhaps we have observations that, although not sufficient to merit a full paper, add a further dimension to one published by others. In other instances we may have a useful piece of methodology that we would like to share.

The Editors hope that readers will take full advantage of this new section and use it to raise matters that hitherto have been confined to a limited audience.

Jon Saunders
Editor-in-Chief

An energetic move for Microbiology

In January 1996, the Editors of *Microbiology* are introducing a new subject category – *Bioenergetics and Transport* – for papers published in the journal.

Why introduce another section? The proposal stems from the fact that much of the most exciting work in contemporary bioenergetics is performed with micro-organisms. Of course, bacteria and yeasts, in particular, have always been at the forefront of bioenergetics research. Consider the recognition of fermentation and the unravelling of its diverse pathways, the discovery of cytochromes, the elucidation of chemiosmotic principles, determination of the path of carbon in photosynthesis, and kinetic and mechanistic descriptions of transport. All these and more were achieved as a result of exploiting the experimental advantages of micro-organisms.

Bioenergetics has entered a new era, largely as a result of the availability and imaginative use of molecular genetic tools. An example of a current 'hot topic' is the dissection of structure-function relationships in complex respiratory proteins like terminal oxidases. These enzymes display an extraordinary similarity of

function and mechanism in bacteria and mitochondria, but the bacterial versions are structurally much simpler and, of course, much easier to handle. The possibility of solving seemingly intractable problems has attracted many 'mitochondriacs' to study bacteria. There have been equally dramatic leaps forward in our understanding of the transport of nutrients into cells (and of antibiotics, unwanted ions and polypeptides out), the energetics of intact cells, and photosynthetic electron transfer proteins, culminating in 1988 with a Nobel prize to Deisenhofer, Huber and Michel for elucidation of the structure of the membrane-bound photosynthetic reaction centre of the purple bacterium *Rhodospseudomonas viridis*. Rapidly developing areas are the bioenergetics of pathogens, to which a symposium was devoted at the Society for General Microbiology's Golden Jubilee meeting at Bath, and the regulation of expression of genes encoding components of energetic mechanisms.

Microbiology is already very active in publishing papers in this field. A survey of papers published in the first 14 months of the new journal revealed more than 50 papers dealing with various aspects of energetics and transport. About half of these appeared in the rather general categories of *Biochemistry* and *Physiology and Growth*. The Editors hope that the new section will provide an appropriate focus for developments in this important area and attract first-rate papers in the field. We invite all those working on any aspects of microbial energetics and transport to consider publishing their work in *Microbiology* and earmarking it for the new section.

Robert K. Poole (Editor)

Microbiology Group, Division of Life Sciences, King's College London, Campden Hill Road, London W8 7AH, UK.

Tel: +44 171 333 4275. Fax: +44 171 333 4500.

Soft X-rays – a novel technique for the study of bacteria

Pesticides, apart from controlling pests, have given rise to numerous environmental concerns. However, microbial species belonging to the genera *Arthrobacter*, *Bacillus*, *Nocardia* and *Pseudomonas* help by utilizing a number of

pesticides by oxidative, reductive or hydrolytic processes (1). It is sometimes tedious and time consuming to spot these few pesticide-degrading strains. In this work, we report for the first time the study of some pesticide-degrading *Pseudomonas* spp. and a number of non-degrading organisms with soft X-rays.

Cultivation of *Pseudomonas ovalis*, *P. tralucida* Pt⁺, *P. tralucida* Ptm⁺ and *Bacillus subtilis* was as described previously (4). *Rhizobium meliloti* and *R. leguminosarum* bv. *trifolii* were cultivated in TY medium, *Salmonella typhimurium* was cultivated in nutrient broth and *Escherichia coli* in Luria broth in accordance with standard conditions. *Frankia* sp. was cultivated as described elsewhere (2).

The bacterial cells, after reaching the exponential phase of growth, were pelleted at low speed (5000 g) for 10 min. The cells were then treated with different fixatives and stains, such as ethyl alcohol, formaldehyde, glutaraldehyde, ruthenium red, osmium tetroxide and uranyl acetate. Different concentrations (0.05–3.0 %) and various combinations were also tried. The solutions were allowed an infiltration time of 120 min at 25 °C.

Smears of the organisms were then made on aluminium foil (40 × 40 × 0.04 mm) and dried overnight using calcium chloride as desiccant. The organisms treated thus were studied with a SOFTEX ISTV 25 soft X-ray system

► GUIDELINES

Communications should be in the form of letters and should be brief and to the point. A single small Table or Figure may be included, as may a limited number of references (cited in the text by numbers, and listed in alphabetical order at the end of the letter). A short title (fewer than 50 characters) should be provided.

Approval for publication rests with the Editor-in-Chief, who reserves the right to edit letters and/or to make a brief reply. Other interested persons may also be invited to reply. The Editors of *Microbiology* do not necessarily agree with the views expressed in *Microbiology Comment*.

Contributions should be addressed to the Editor-in-Chief via the Editorial Office.