Buckminsterfullerene (colloquially known as buckyballs) is a recently discovered C60 allotrope of carbon which is causing considerable interest in organic chemistry laboratories around the world, not least because it has considerable industrial potential as a catalyst and lubricant (1). It is a black powder which looks very like fine charcoal or soot.

Although the chemical and physical properties of buckminsterfullerene have been widely studied, little is known about the biological properties, if any, of this carbon allotrope. From its structure, however, it seems unlikely that it would be biologically unreactive. Despite this, a novel fullerene derivative has been found to block an enzyme found in human immunodeficiency virus (2).

We recently exposed buckminsterfullerene (Fluka, Chemica) in ultrapure water to the laboratory atmosphere (25 mg in 100 ml water, in chromic-acid-washed glass Petri dishes; 10 dishes per treatment) to see if contaminating fungi would grow on it in the absence of any added nutrients. The dishes were left for 7 d at room temperature (approx. 18–20 °C), followed by a further 7 d incubation with the Petri dish lids replaced.

After this period, fungal mycelium was clearly seen (in all of the 10 Petri dishes) with the naked eye growing from a clump of floating buckminsterfullerene. The fungus failed to sporulate on buckminsterfullerene (Fig. 1), but grew well and sporulated on Czapek Dox agar (Oxoid); it was identified as a species of *Penicillium*.

The fungus could have originated from the laboratory air or, since the buckminsterfullerene was not sterilized, from the powder itself. No obvious signs of degradation of buckminsterfullerene due to fungal growth were observed, which is not surprising, since it is unlikely that a fungus could use this allotrope as a sole source of carbon. What is more likely is that the *Penicillium* grew oligotrophically on buckminsterfullerene using nutrients scavenged from the air. Fungi can grow in this way, apparently by scavenging combined forms of carbon and nitrogen from the atmosphere (4). Having said this, no fungi were seen growing in dishes incubated alongside those containing buckminsterfullerene but containing only ultrapure water. In addition, mycelium did not appear on activated charcoal when added to ultrapure water; a fact which suggests that mould growth on buckminsterfullerene was not merely due to it acting as a growth-encouraging surface. Buckminsterfullerene can absorb gases, such as hydrocarbons and ammonia (3) which could act as nutrient sources;

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**Fungal growth on buckminsterfullerene**

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Fig. 1. Scanning electron micrograph showing a contaminant of a species of *Penicillium* growing on buckminsterfullerene in ultrapure water. Bar, 10 μm.