History of penicillin

SIR: The history of penicillin research was recalled recently on the fiftieth anniversary of the discovery of penicillin by Fleming in 1929. It is less well known, however, that microbiologists have been aware of the antibiotic activities of *Penicillium* species for at least a further 70 years. Fehlmann mentioned in his article on early penicillin that antibiotic substances had been isolated from *Penicillium* as early as 1896 and 1899 by Gosio, and von Emmerich & Low. Furthermore, Manassein (1871) and Tyndall (1876) knew of the ability of the green fungus *Penicillium* to inhibit bacterial growth. Indeed it is possible to trace the history of early penicillin even as far as Pasteur.

About 1860 Pasteur started a series of experiments to prove that the hypothesis of a *generation spontanea* was no longer tenable. He showed that microbial life was not generated spontaneously but had an organic basis. In his articles a few statements concern the interaction between *Penicillium* and bacteria. Pasteur mentioned that it was well known that bacteria ('infusoria') did not develop in a culture broth if *Penicillium* was already present. In a mixed culture exposed to open air, *Penicillium glaucum* was able to grow, but the bacteria present were soon killed. He believed, however, that this phenomenon was due to the absorption of oxygen by the fungus. Tyndall (1876) had the same explanation for the antibiotic effect of *Penicillium*.

The history of penicillin shows that Pasteur already had the key to antibiotics in his hands in 1860 but that it took another 70 years before they were 'discovered' by Fleming in 1929 and Chain & Florey in 1940.

2 Fehlmann, H. R. (1980) *Pharm. Int.* 1, 8–9

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