

## News and Views

### Role of polysaccharides in the preservation of bodies in peat

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Readers may be interested to learn that Professor Terry Painter's review paper on the preservative and antimicrobial action of *sphagnum* on animal tissues in peat bogs (*Carbohydr. Polym.*, (1991). **15**, 123–142) has made a significant impact. The article received more than 150 reprint requests.

Sphagnum is structurally related to the complex pectins of vascular plants, but in addition to residues of  $\alpha$ -D-galactopyranosyluronic acid, it also contains residues of 5-keto-D-mannuronic acid (D-lyxo-5-hexosulouronic acid). It is, therefore, a naturally occurring glycuronoglycan which contains numerous, highly reactive carbonyl groups distributed along its chains, in addition to the usual reducing end-group. Its chemical properties resemble those of periodate-oxidised (dialdehyde) starch, whose tanning properties are well established.

In its native state, sphagnum occurs in the hyaline cell walls of *Sphagnum* mosses, where it is covalently linked to cellulose and an amyloid-like xyloglucomannan. Upon the death and decay of the moss, however, it is slowly liberated in soluble form, and is then free to react with the collagen and other tissue proteins in animal remains. This tanning reaction shows all the characteristics of a typical Maillard, or 'melanoidin' reaction.

In its insoluble, cellulose-bound form, sphagnum acts in more subtle ways to suppress microbial activity. Exoenzymes secreted by putrefactive bacteria are immobilised and deactivated on the surfaces of insoluble fragments of moss, and prevented from attacking their substrate. Any ammonia or amino acids that do get liberated are sequestered by the Maillard reaction, and they thereby become inaccessible to the bacteria. Essential metal cations are also sequestered by sphagnum. The antimicrobial action, therefore, consists of extreme nutrient limitation rather than toxicity.

A more detailed account of the chemical and microbiological aspects of the preservation process has appeared in a chapter recently written by Professor Painter for '*Bog Bodies, New Discussions and New Perspectives*' edited by R.C. Turner and R.G. Scaife, published by British Museum Press, 46 Bloomsbury Street, London WC1B 3QQ.

It is not our normal policy to draw attention to books in the 'News and Views' section of the Journal, but this interesting account of the unusual functional behaviour of a carbohydrate polymer would be overlooked by the carbohydrate community who are not normally aware of British Museum publications!

**John Mitchell**