

DENNIS MCHUGH CURRICULUM VITAE

Dennis McHugh studied chemistry and pharmacy at the University of Sydney, graduating (1953) with BSc, Hons. Class 1, in Pharmaceutical Science and Food & Drug Analysis. He worked for a time in the R & D laboratory of the first Australian manufacturer of fibreglass plastics. He then joined the University of New South Wales as a Teaching Fellow, supervising classes in food chemistry and studying under Professor S.J. Angyal. In 1957 he graduated PhD in organic chemistry for his work on the synthesis and stereochemistry of hexahydroxycyclohexanes. The next seven years were spent with Parke Davis & Co., pharmaceutical manufacturer, in Sydney where he was first involved in the formulation of new pharmaceutical and cosmetic preparations. Later, in collaboration with the parent US company, he initiated a project for the synthesis and animal testing of novel anthelmintics for sheep.

In 1963 he joined Alginates Australia Pty. Ltd., a newly formed company that harvested brown seaweeds in Tasmania and extracted alginates from them; alginates are used as thickening and gelling agents in many industries. As Technical Manager he was responsible for an applications laboratory, quality control laboratory and for a time, the factory and harvesting operations.

In late 1966 he joined the staff of the Chemistry Department of the Royal Military College, Duntroon, and later transferred to the Australian Defence Force Academy at its foundation in 1985. The academic (non military) staff and programmes of the Academy are part of the University of New South Wales. He has been responsible for courses in organic chemistry, and more applied topics such as food chemistry, the production and uses of fossil fuels and alternative energy sources, the manufacture, properties and uses of polymers and plastics, the production and properties of detonants, propellants and high explosives. For several years his research interests were in organic geochemistry; these included a study of Australian shales and coals using pyrolysis-gas chromatography-mass spectrometry as well as examination of the organic chemical components of geologically Recent sediments.

In 1981 his interest in seaweeds was renewed when he went to China on behalf of the Food & Agriculture Organisation of the United Nations to advise on alginate production from Chinese brown seaweeds. Further consultancies have since led to a widening of his interests to include the production of agar and carrageenan, extracted from red seaweeds, and the marketing of seaweeds and products made from them.

In 1999 he retired from the University of New South Wales where he now has the appointment of Honorary Visiting Fellow. His research interests continue to be in chemical and economic studies of commercial methods for the extraction of

industrial chemicals from seaweeds, and market studies for commercial seaweeds and their polysaccharide extracts.

He is a member of the Editorial Board of the Journal of Applied Phycology.

Publications

A. Seaweed-related publications.

- D J McHugh. 1981. People's Republic of China. The alginate industry in China. Report prepared for the project TCP/CHA/0102 introducing new equipment and technology for algin processing, based on the work of D J McHugh. FAO Report No. FI/TCP/CHA/0102, FAO, Rome. 29 p.
- D J McHugh & B V Lanier. 1983. ADB/FAO Infofish Market Studies, Volume 6. The world seaweed industry and trade. FAO, Rome. 30 p.
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- D J McHugh. 1984. Marine phycoculture and its impact on the seaweed colloid industry. *Hydrobiologia*, 116/117: 351-354.
- D J McHugh & B V Lanier. 1984. Korea's edible seaweed trade. Infofish Marketing Digest, No.3, 17-19.
- D J McHugh. 1987. Production, properties and uses of alginates. In McHugh D J (ed.), Production and utilization of products from seaweeds. Food & Agriculture Organisation of UN, Rome, pp. 58-115.
- D J McHugh & P Philipson. 1989. Post-harvest technology and marketing of cultured *Eucheuma* seaweeds. In P Philipson (ed.), "The marketing of marine products from the South Pacific". Institute of Pacific Studies of University of the South Pacific, Suva, pp. 143-163.
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- D J McHugh. 1991. Worldwide distribution of commercial resources of seaweeds including *Gelidium*. *Hydrobiologia*, 221: 19-29.
- D J McHugh. 1996. Seaweed production and markets. FAO/GLOBEFISH Research Programme, Vol. 48, Rome, FAO. 73 pp.
- D J McHugh & R J King 1998. The seaweed resources of Australia. In Critchley A T , Ohno M (eds) *Seaweed Resources of the World*, Japan International Cooperation Agency, Yokosuka. 138-145.
- Dennis J McHugh, Gustavo Hernandez-Carmona, Dora Luz Arvizu-Higuera, Y Elizabeth Rodriguez-Montesinos. 2001. Pilot plant scale extraction of alginates from *Macrocystis pyrifera* 3. Precipitation, bleaching and conversion of calcium alginate to alginic acid. *Journal of Applied Phycology* 13, 471-479.
- D J McHugh. 2002. Prospects for seaweed production in developing countries. FAO Fisheries Technical Circular. No.968. Rome, FAO. 28pp.
- D.J.McHugh. 2003. A guide to the seaweed industry. FAO Fisheries Technical Paper, No.441. Rome, FAO. 105pp.

B. Other publications.

- D J McHugh & S E Wright. 1954. Some nitro- and amino-compounds prepared from naturally occurring 2,2-dimethyl-chromenes. *Australian Journal of Chemistry*, 7: 166-168.
- G W K Cavill, E R Cole, P T Gilham & D J McHugh. 1954. Organic oxidation processes. Part I. The oxidation of some methylphenols with lead tetraacetate. *Journal of the Chemical Society*, 2785-2788.
- S J Angyal & D J McHugh. 1955. *cis*-Inositol, a 1:3:5-triaxially substituted cyclohexane derivative. *Chemistry and Industry*, 947-948.
- S J Angyal & D J McHugh. 1956. Interaction energies of axial hydroxyl groups. *Chemistry and Industry*, 1147-1148.

S J Angyal & D J McHugh. 1957. Cyclitols. Part V. Paper ionophoresis, complex formation with borate, and the rate of periodic acid oxidation. *Journal of the Chemical Society*, 1423-1431.

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D J McHugh. 1958. The properties and application of new emulsifying and thickening agents. *Australasian Journal of Pharmacy*, 29 November, 416-419.

D J McHugh & R Johnstone. 1964. Pyrazinyl benzimidazole. Australian Patent 272,922.

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D J McHugh, J D Saxby & J W Tardif. 1976. Pyrolysis-hydrogenation-gas chromatography of carbonaceous material from Australian sediments.

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