

Obituary

When Dr. Wilfred Yaphe died on May 17, 1986, it was just prior to his retirement. All his plans had been made for him and his wife, Ruth, to move to Israel, where their three children, Arona, John, and Anna, were residing.

Dr. Yaphe was born in Lachine, Quebec, July 9, 1921. After serving in Europe during World War II, he studied at McGill University, graduating with a B.Sc. (Hons.) in 1949. He then moved to the McDonald campus of the University to undertake post-graduate studies with Professor Gray. He received his doctorate degree in Agricultural Bacteriology in 1952 and took up an appointment at the Maritime Regional Laboratory (now the Atlantic Research Laboratory) of the National Research Council. He remained there until 1966, when he moved to McGill University where, at the time of his death, he was a Professor in the Department of Microbiology and Immunology.

Wilf was a pioneer in the field of degradation of marine polysaccharides, agar and carrageenan, by marine bacteria. It was in Halifax that he isolated the two bacteria that were the starting point of his life's work: *Pseudomonas atlantica*, which hydrolysed agar, and *Pseudomonas carrageenovora*, which hydrolysed carrageenan. He was able to purify an agarolytic enzyme (beta-agarase) from *Pseudomonas atlantica* and a carrageenolytic enzyme (kappa-carrageenase) that was specific for kappa-carrageenan from *Pseudomonas carrageenovora*. Fucoidolytic enzyme preparations were derived from both of these organisms and glyco-sulphatase were isolated (with J. Weigl) from *Ps. carrageenovora*. He promoted the idea of using the agarase to identify agar in marine algae and the use of it, together with the kappa-carrageenase, as an aid in the classification of the Rhodophyceae. He also made proposals with regard to the classification of microorganisms which utilize the polysaccharides of marine algae. Concomitant with these studies, he undertook the development of colorimetric methods for determining specific sugars in marine polysaccharides. A series of papers, as author or co-author with G.P. Arsenault, culminated in the publication in 1965 of the colorimetric method for the determination of 3,6-anhydrogalactose in polysaccharides.

On his move to McGill, Dr. Yaphe greatly extended his study of the genus *Gracilaria*. He and his co-workers found through this programme of research that agar was a group of closely related polysaccharides, not just the two fractions as originally thought. The studies of the structure and distribution amongst different species of carrageenan were also greatly expanded. During his time at McGill, Dr. Yaphe and his co-workers isolated and purified alpha-neoagarobiose hydrolase, p-nitrophenyl alpha galactoside hydrolase and beta-neoagarotetraose hydrolase from *Pseudomonas atlantica* and iota-carrageenase from *Pseudomonas carrageenovora*. The use of ¹³C NMR spectroscopy in combination with enzymatic degradation by him and his colleagues enabled them to examine the structures of agar and carrageenan to a far greater extent than had previously been possible. Additional repeating structures in agar and carrageenan were discovered and characterized. Using these methods, they were able to analyse the agar and carrageenans from different genera and species of the Rhodophyta collected from different geographical locations.

During his career, Dr. Yaphe was author and co-author of over 60 publications. He was recognised world-wide as a prominent figure in the field of agar and carrageenan chemistry and as such was often invited to give lectures. His laboratory attracted students and scientists from around the world. He was an active participant in the International Seaweed Symposia, at which his contributions on marine algal polysaccharide chemistry were listened to with great respect.

Wilf was a member of the Nova Scotian Institute of Science for many years and actively participated in the meetings. In 1972, he was invited to give a lecture on the chemistry of carrageenan at a special symposium.

All of those who knew Wilf professionally remember him with respect as a scientist. Those of us who knew him personally remember him with affection as a man of great warmth and human feeling.

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