International Council for the Exploration of the Sea

C.M.1971/H:9
Pelagic Fish (Northern) Committee

About the Identity of "C" and "A" Erythrocyte Antigens in Atlantic Herring (Clupea harengus harengus L.)

by

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Immunoserological studies of herring from the Gulf of Maine showed that herring is not homogeneous in its erythrocyte antigens and is divided into "positive" and "negative" by the type of haemoagglutination reaction with the normal serum of lobster (Homarus americanus), extract of Lima bean seeds and the immune anti-herring serum of rabbit (Sindermann and Mairs, 1959). Fish exibiting a positive haemoagglutination reaction possess an antigen which was named the "C" antigen, and was "C-positive". As reagent for revealing the "C" antigen, the absorbed anti-herring serum of rabbit was used.

In Atlantic herring from the North Sea, and in its sub-species the Baltic herring, a 3-allelic blood group was found and described by Altukhov, Truveller, Zenkin & Gladkova (1968) and Zenkin (1969). The erythrocyte antigen in these herring was designated as "A" antigen.

Studies of erythrocyte antigens in Atlantic herring from the Georges Bank by means of reagents for antigen "A" (normal human blood serum of ABO-system, extract of Lima bean seeds, immune anti-herring and anti-Baltic herring serum of rabbit) also revealed the presence in these herring of the 3-allelic system of blood groups similar to the A-system.

The serum of lobster (reagent for "C" antigen) as well as the human sera of the B, AB, O groups (reagents for "A" antigen) and immune anti-herring sera of rabbit, revealed 3 blood groups (phenotypes A_1, A_2 and A_o) in Atlantic herring, similar to the groups which had been found in the North Sea and Baltic herring.

In its agglutination reaction pattern, the serum of lobster is identical to the human blood sera of the ABO-system and to the anti-herring blood serum of rabbit (titer 1:64).

Since Sindermann and the author in their studies of erythrocyte antigens of herring used identical reagents and found the same types of reaction both in the Atlantic and in the North Sea herring, as well as in the Baltic one, it is clear that the erythrocyte antigens which we named differently as "C" and "A", are identical and constitute a single genetic system of blood groups for the whole species Clupea harengus L.

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