LEPTOSPIRA POLONICA - A NEW SEROTYPE

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ABSTRACT. A new Leptospira serotype, of the "hebdomadis" group, was isolated from Erinaceus europaeus roumanicus (the European hedgehog). The name Leptospira polonica nom. nov. was proposed and accepted.

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From Erinaceus europaeus roumanicus (the European hedgehog), Leptospira strain 493 Poland was isolated. This was shown by preliminary serological analysis to be related to L. sejroë and other serotypes of the "hebdomadis" group (3). The strain was sent for analysis to the WHO reference laboratory for Leptospira in Amsterdam.

Complete analysis of the receptors, made by J.W. Wolff (4), showed the strain to differ in its antigenic structure from other serotypes of the "hebdomadis" group. In the agglutination tests the strain 493 Poland showed the highest titers with the following immune antisera: L. hardjo (Hardjoprajitno), L. wolffii (3705 and H 7), L. medanensis (Hond HC), L. sejroë (M 84), L. sejroë balcanica (1627 Burgas), L. borincana (HS 622) and L. kambale (Kambale). The 493 Poland immune antiserum gave the highest titers with L. sejroë balcanica (1627 Burgas), L. sejroë (M 84), L. wolffii (3705 and H 7), L. hardjo (Hardjoprajitno), L. medanensis (Hond HC), L. saxkoebing (Mus 24) and L. haemolytica (Marsh).

After absorption of 493 Poland antiserum by L. sejroë (strain M 84) 10% of the homologous antibodies remained in the serum; 100% of homologous antibodies remained in L. sejroë (M 84) antiserum. This is evidence that the strain 493 Poland is a new serotype, according to the principles of Leptospira taxonomy established by the WHO/FAO Expert Committee and by the Leptospira Subcommittee of the International Committee of Bacteriological Nomenclature (1,5). The name Leptospira polonica nomen novum was proposed and accepted.

The strain L. polonica was further subjected to serological analysis in Dr. Kmety's laboratory in Bratislava. The agglutination tests were performed with L. polonica and 84 immune sera produced by immunisation of rabbits all standard strains of Leptospira. Positive results were obtained only with sera against strains of the "hebdomadis" group. The highest titers were obtained with the following antisera: L. hardjo (Hardjoprajitno), L. wolffii (3705 and H 7), L. kabura (Kabura), L. sejroe (M 84), L. borincana (HS 622), L. sejroe balcanica (1627 Burgas), and L. medanensis (Hond HC). The L. polonica immune antiserum gave a positive reaction only with strains of the "hebdomadis" group; the highest titers were obtained with L. sejroe (M 84), L. medanensis (Hond HC), L. wolffii (3705 and H 7), L. hardjo (Hardjoprajitno), L. saxkoebing (Mus 24 and Nero Gamzulin), L. sejroe balcanica (1627 Burgas) and L. haemolytica (Marsh and Richardson).

After absorption of L. polonica immune antiserum by the strain L. saxkoebing (Mus 24), distinct antibodies against L. sejroe (M 84), L. hardjo (Hardjoprajitno) and L. polonica (493 Poland) remained in the serum. Therefore the presence of a common antigen (A) can be assumed. After absorption by the strain L. hardjo (Hardjoprajitno) the presence of another antigen (B) common with L. sejroe (M 84) could be concluded.

After absorption of L. polonica immune antiserum with L. sejroe (M 84) antigen—which is serologically close to L. polonica—antibodies remained in the serum indicating that there is a L. polonica type-specific antigen (C). The serum initial titer was 12800, and after absorption the titer was 800, a little less than 7%.

The strain L. sejroe (m 84) appeared antigenically closest to L. polonica; therefore, M 84 immune antiserum was absorbed with L. polonica antigen. Antibodies remaining in the serum after absorption gave evidence that, besides antigens common with L. polonica, L. sejroe (M 84) contains at least one additional specific antigen (D).

In view of such results, and according to Kmety's criteria for principal antigens (2), the strain L. polonica constitutes in fact a new serotype (Table 1).

Table 1. Classification of the Leptospirae of the "hebdomadis" serogroup.

Serotype	Subserotype	Type strain
hebdomadis	hebdomadis	Hebdomadis
hebdomadis	nona	Nona
kambale		Kambale
kremastos		Kremastos
worsfoldi		Worsfold
jules		Jules
borincana		HS 622
kabura*		Kabura
mini	mini	Sari
mini	szwajizak	Szwajizak
mini	georgia	LT 117
hardjo		Hardjoprajitno
wolffii		3705
medanensis		Hond HC
sejroe	sejroe	M 84
sejroe	balcanica	1627 Burgas
maru*		CZ 285B
saxkoebing	saxkoebing	Mus 24
saxkoebing	nero	Nero
haemolyticus	haemolyticus	Marsh
haemolyticus	ricardi	Richardson
parameles		Bandicoot 343
polonica		493 Poland

*Provisional classification pending further studies.

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