



HOKKAIDO UNIVERSITY

Title	STUDIES ON SEROLOGIC DIAGNOSIS OF MULTILOCLAR ECHINOCOCCOSIS, ESPECIALLY ON THE HEMAGGLUTINATION TEST USING FRACTIONATED ANTIGENS AND UTILIZATION OF CYSTICERCUS FASCIOLARIS ANTIGENS
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the embryo-susceptibility test. Furthermore, it showed a high reliability.

3) The serum antibodies were detected by IDFAT 1 week after infection and the titers increased almost in parallel with that of the neutralization index.

4) Maternal antibodies in eggs were found by the IDFAT 2 weeks after the mother hens had been infected.

5) IDFA activity was found in both the IgM and IgG at the initial stage of the infection, and then shifted from IgM to IgG. However, the IgM antibody in chickens remained for a long time after infection. IgM was more active to IDFAT than to VNT.

STUDIES ON COLIBACILLOSIS IN PIGS

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STUDIES ON SEROLOGIC DIAGNOSIS OF MULTILOCULAR ECHINOCOCCOSIS, ESPECIALLY ON THE HEMAGGLUTINATION TEST USING FRACTIONATED ANTIGENS AND UTILIZATION OF *CYSTICERCUS FASCIOLARIS* ANTIGENS

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The author conducted experiments to separate specific antigenic materials from the hepatic cyst of experimental animals, and to obtain a suitable reaction method for the diagnosis of multilocular echinococcosis. This study was also planned for the purpose of clarifying the fact that a negative or low titer was obtained by the tannic acid hemagglutination test when crude echinococcal antigens were reacted with sera from multilocular human cases. The author also investigated substitute antigens from *Cysticercus fasciolaris*. The results obtained are summarized as follows.

1) The cystic fluid and scolex extracts of *Echinococcus multilocularis* were fractionated by means of DEAE cellulose columns in a stepwise fashion using

sodium chloride solutions of increasing molarity. The antigenicity of the fractions was checked by the Ouchterlony test. Among the cystic fluid fractions, fraction D included a specific antigenic material and reacted most frequently with the sera from human cases. This fraction was eluted by a 0.2 M sodium chloride solution after the elution of fraction C by a 0.1 M sodium chloride solution. The scolex extract did not contain host elements, and the fractions showed the existence of the echinococcal antigens. Each fraction was also reactive against antiserum of *Cysticercus fasciolaris* in the Ouchterlony test.

2) It was clarified that an inhibitory substance and a spontaneous agglutinin existed at the time of the hemagglutination test. Chromatographic methods using DEAE cellulose and Sephadex columns were effective for the removal of these substances. It was estimated that these substances originated solely in the echinococcal tissue, especially in the scolex element.

3) In the hemagglutination test, the cystic fluid and scolex extracts, from which the interfered substances noted above were removed, were reactive against the sera from human cases. Moreover, the author clarified that the scolex extracts gave an excellent result, although negative assertions with regard to the antigenicity of the scolex extracts had been made in the past.

4) It was concluded that the hemagglutination test was useful for the serologic diagnosis of multilocular echinococcosis, and this test was superior, in sensitivity and specificity, to the complement fixation test.

5) In the Ouchterlony test, extracts from strobilae of *Cysticercus fasciolaris* were evidently reactive against the sera from human cases. Therefore, after the removal of the spontaneous agglutinin by DEAE cellulose chromatography, the extracts can be used as substitute antigens in the hemagglutination test for multilocular echinococcosis.

STUDIES ON THE SEROLOGIC DIAGNOSIS OF JOHNE'S DISEASE

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