

# **PATHOGENICITY AND CHARACTERISTICS OF AVIAN ADENOVIRUS ISOLATES OF MALAYSIA**

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## **ABSTRACT**

Avian adenoviruses are divided into three groups: the group I, II and III. The latter group is associated with egg drop syndrome (EDS76), whilst the group II causes splenomegaly in chickens. The group I adenoviruses is tropic for hepatocytes, pancreatic acinar cells and gizzard epithelium. However, there is conflicting evidence on the role of the group I adenoviruses (FAdV) as primary pathogens in nature. It was the objective of the study to characterise and determine the pathogenicity of FAdV isolated in Malaysia. Organ samples of chicken were collected from the healthy and unhealthy chickens in the farms in the States of Johor, Melaka, Negeri Sembilan, Selangor, Perak and Pahang. The history and clinical signs were recorded and the samples were processed for virus isolation, identification and characterisation using both the conventional and molecular biology techniques. These include the ultrastructural studies using electron microscopy as well as recent molecular and bioinformatic techniques in the characterisation of the virus. Five isolates of FAdV were successfully isolated using specific-pathogen-free (SPF) embryonated chicken eggs. The isolates were characterised as FAdV serotype 9 or 2. The pathogenicity and pathogenesis of the selected isolates were established in the SPF eggs and chickens. The FAdV serotype 9 isolate showed low pathogenicity and could be used for future research in the development of FAdV vector for recombinant vaccines. Immunogenic viral protein or genes from other important viruses such as Newcastle disease virus, infectious bursal disease virus, infectious bronchitis virus and chicken anaemia virus can be inserted into the FAdV vector. This will allow development of a single vaccine to protect against more than one important poultry disease. The pattern of recent outbreaks of FAdV may also suggest that FAdVs have high potential as a primary agent in disease outbreaks. This may be an invitation for the development of FAdV vaccine and diagnostic kits.