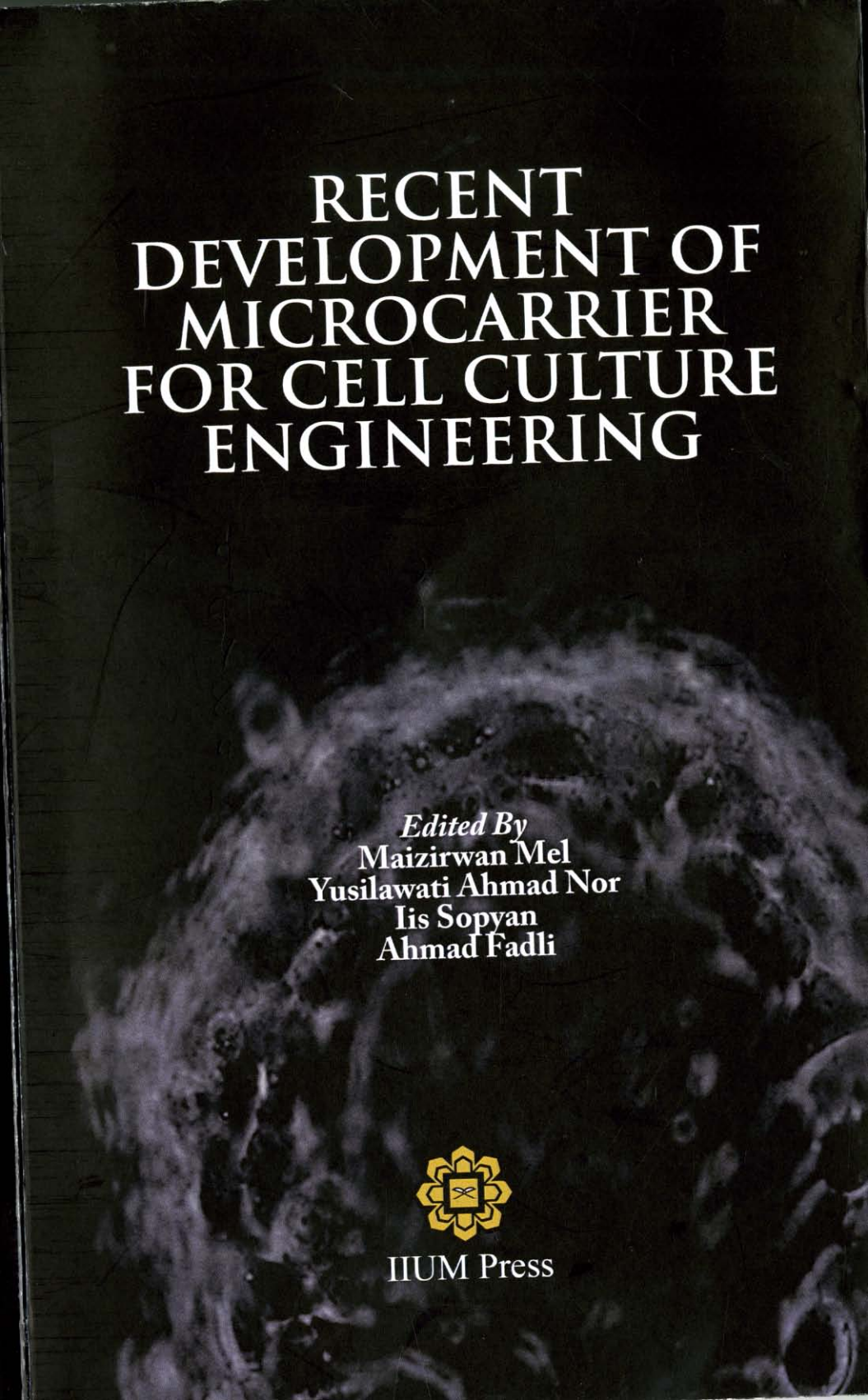
RECENT DEVELOPMENT OF MICROCARRIER FOR CELL CULTURE ENGINEERING



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Chapter 17

Newcastle Disease Virus Propagation in Stirred Tank Bioreactor: Part II

Mohd Azmir Arifin, Siti Hajar Salim, Maizirwan Mel

1. Introduction

Newcastle disease (ND), caused by Newcastle disease virus (NDV) is reported as the most important viral disease of poultry in the world (Adene, 1990). ND has been a devastating disease of poultry, and in many countries the disease remains one of the major problems affecting existing or developing poultry industries. The disease can vary from clinically inapparent to highly virulent forms, depending on the virus strain and the host species (Huang *et al.*, 2003). NDV belongs to the Avulavirus genus within the family Paramyxoviridae, subfamily Paramyxovirinae, in the order Mononegavirales and is designated avian paramyxovirus-1 (APMV-1). Nine avian paramyxovirus serotypes (APMV-1 to APMV-9), of which APMV-1 is the most economically important, have been identified among these virus types (Alexander, 2003). The enveloped virus has a negative-sense, single-stranded RNA genome which codes for six proteins including a nucleoprotein (N), phosphoprotein (P), matrix (M) protein, fusion (F) protein, hemagglutinin-neuraminidase (HN) protein and an RNA directed RNA polymerase (L) in the 30 to 50 direction (de Leeuw