Second Order Limit Language with Two Cutting Sites

[a] Muhammad Azrin Ahmad, [b] Nor Haniza Sarmin, [c] Wan Heng Fong, [d] Yuhani Yusof

[abc] Department of Mathematical Sciences, Faculty of Science, Universiti Teknologi Malaysia,
81310 UTM Johor Bahru, Johor, Malaysia

E-mail: aazrinahmad1@gmail.com , bnhs@utm.my , cfwh@utm.my

[d] Faculty of Industrial Sciences & Technology, Universiti Malaysia Pahang,
26300 Lebuhraya Tun Razak, UMP Gambang, Pahang, Malaysia
E-mail: dyuhani@ump.edu.my

ABSTRACT:

The study of recombinant behavior of double-stranded DNA molecules with the presence of selected restriction enzyme and ligase leads to the development of mathematical modelling of splicing system. Therefore, molecular biologists start focusing more on splicing systems. The splicing language that is generated from the splicing system is categorized into inert/adult, transient and limit languages. Recently, the study of the limit language has been extended to the second order limit language. Previous researchers have focused their study on the three categories of splicing language. A normal splicing system with no restriction on the number of cutting site and the properties of the rule result to non-existence of the second order limit language. In this paper, the existence of a second order limit language in a type of splicing system, namely the Y-G splicing system is investigated in which there are two cutting sites in the set of rules.

Keywords: splicing system; splicing language; limit language; DNA.