Review of: "Evolution of new variants of SARS-CoV-2 during the pandemic: mutation-limited or selection-limited?"

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I think the authors have done a good job in criticizing the classical compartmental SIR model and its widespread application for predicting evolution of virus epidemics and of SARS-CoV-2 in particular. The SIR model indeed does not take into proper account the notion that immunity is a continuous variable in terms of recognized viral epitopes and natural decay of the immune response. Therefore their simulation curves based on publicly available data, although not qunatifying the phenomenon of new SARS-CoV-2 variants onset and spread, seem to strenghten the importance of the immune-based selection-paradigm with respect to the mutation-limited paradigm. The selection hypothesis has a number of implicit theoretical and practical implications for Public Health measures, as the authors suggest, especially when they are questioning the validity of lock-down measure to curb the COVID-19 pandemic. Moreover, the manuscript drives the attention to the connection between persistent immunity and pathogen virulence, notwithstanding the ability to mutate be a common feature of all families of riboviruses. This concept would deserve further attention by scientists working in the field of antiviral immune response and virus genetic evolution.

In conclusion I think the manuscript, although being principally a theoretical investigation, has enough potential to attract the attention of the readers of Qeios and to stimulate further research in the area.