



Organise:

**Journées Nationales et
Biotechnologies et
Bioinformatique**

JNBTBI



10 et 11 Octobre 2022



TOPIC: Biotechnologies

**Machine Learning Methods for Prediction and Detection of new Variants of Covid-19:
Using Genomic Data**

DEHIMAT Abdelouahab^(1,*); MAHMOUDI Cherifa⁽¹⁾; ROBEI Ahlem⁽¹⁾

Abstract

Background: Machine learning techniques have a significant role in predicting of COVID-19. Accurate identification of COVID-19 is now a critical task since it has seriously damaged daily life, public health, and the economy. It is essential to identify the infected people to prevent the further spread of the pandemic and to treat infected patients quickly.

Objective: In this study, we performed binary classification and detection of new variants (COVID-19 vs. other types of coronavirus) by extracting features from genome sequences.

Methods: Different models from machine learning support vector machines, naive Bayes, K-nearest neighbor, and random forest methods were used for classification. We used viral gene sequences from the 2019 Novel Coronavirus Resource Database.

Results: Experimental results presented show that a decision tree method achieved a high percentage of accuracy.

Conclusion et Perspectives : This study allowed to use of different models of Machine learning with high accuracy to predict and detect new variants of Covid-19 and allow to apply of those models for detecting new future pandemics caused by other types of viruses.

Keywords: Machine Learning; coronavirus; COVID-19