

## REVIEW ARTICLE

# BF.7 Subvariant of Coronavirus

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### ABSTRACT

Since the covid variant omicron emerges out un 2021 it is rapidly evolved into multiple subvariants. As we are well-aware about the corona virus and its disaster's effects on everyone's life. Corona virus was known to cause so much threat to human life. As the life is going on smoothly and everything slowly comes to normal. There is one more alarming infection or subvariant of corona virus has emerged recently and been identified as the main variant spreading in Belgium and can contribute to a wide range of infection in China. According to the report from China, this subvariant has the strongest infection ability being quicker to transmit than other. Variants having a shorter incubation period and with greater capacity to infect people. Who have had a previous Covid infection or been vaccinated or both. A high transmission rate of BF.7 taken with the great risk of hidden spread due to many asymptomatic carriers. Symptoms of infections include respiratory problem, sore throat, Runny nose, and fatigue. So many experiences vomiting and diarrhoea. Mostly this variant attack people with weaker immune systems. In this present paper will discuss about the mutation effects severity and various other detail about the sub variant which may also lead to problems like Corona, if not evaluated or cured.

**Keywords:** - Variant, Corona, emerged, Immune system, Virus.

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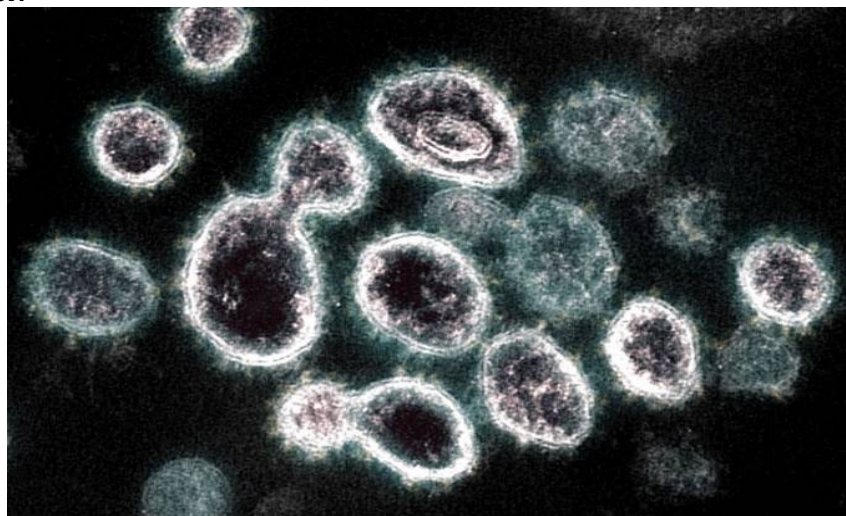
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## INTRODUCTION



**Fig-1 Mutation of BF.7**

Since the emergence Cov-19 three and half years ago the virus have continued to evolve, acquiring genetic mutations [1-4], more rapidly than expected vaccination is still the best weapon we have to fight

with Covid and the vaccination is very promising too but recently BF.7 has been detected in several other countries around the world. BF.7 carries a specific mutation i.e., R346T in the spike protein of SARS-Cov-2 with enhancing the capacity of virus. The first case of this subvariant in India was detected in October by Gujarat Biotechnology research centre one from Gujrat and one from Odisha, both of them treated at home itself. The given condition demanded people to follow Covid appropriate behaviours including wearing mask in crowded places and getting vaccinated [4-6]. According to sources Chinese cities or hit by the highest transmissible strain. BF.7 which is the main variant spreading and is contributing to a wider infection. Its also detected in other countries like US, UK, and European nations. A number of daily infections have grown which caused concerns in global bodies like WHO and can cause serious illness in people with weaker immunity [7]. As we know that Covid-19 becomes one of the largest pandemics the human's race ever faced. China in meanwhile facing an unprecedented crisis due to BF.7 variant with its ten takes spread over Japan, South Korea, and Hong Kong. The virus is like a tree which is growing and branching out and each branch is somewhat different from the other [7]. By comparing their branches scientists name or label them as various variant and sub-variant. Some variations allow the virus to spread more easily or make it resistant to medicines or vaccines so need to be monitored carefully [3]. As per the symptom of BF.7 infections are not different from there infected with other sub variants of Omicron. Sore throat fever cough vomiting, Fatigue, body ache, headache, and diarrhoea, are few symptoms. Barring mRNA vaccines from Pfizer and Moderna all other vaccines have been developed targeting SARS-COV-2 and alpha variants. Since the bivalent boosters of Pfizer's and Moderna mRNA vaccines that have been made with delta and Omicron as targets known as the updated boosters [8-15].

#### Effects of BF.7 on India: -

Currently India is in a much better and safer Position, 90% of the population has excellent vaccination to the extent that 75% of the population has received. 2 doses and 25% of third dose making us the nation with high percentage of immunity<sup>6</sup>. India is reporting around 1000 cases weekly with less than 15 death it is prudent to take precautionary measures and do the make drill for the well preparedness. State government and local self-governments up to panchayat level. Medicinal professionals and vaccine manufacturing companies along with the society [16].

#### Characteristics of BF.7 Variant: -

1. BF.7 is another name for Omicron Variant.
2. This strain is highly transmissible.
3. The variant has an R-value of 10-18, means that an infected person can transmit the virus to 10-18people.
4. BF.7 has a shorter incubation period.
5. BF.7 has a high capacity of Re- infection [10].
6. Its symptoms are same as other variants.
7. The BF.7 variant has a mutation in its spike protein (R346T). Which contribute to infectivity.

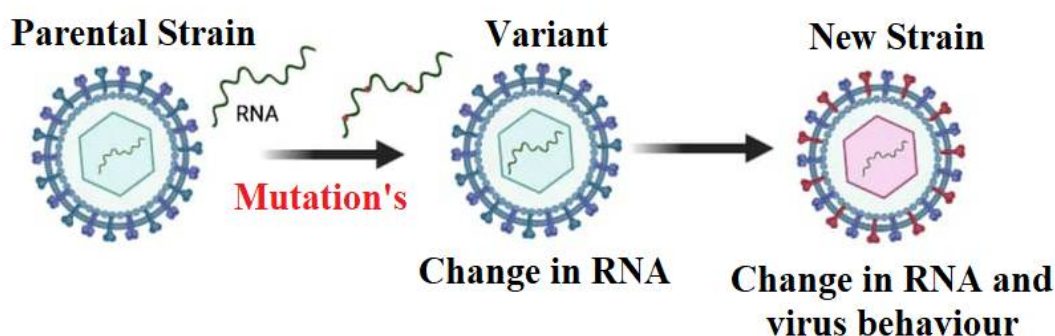


Fig: -2 Formation of Virus

#### MODE OF ACTION

As a virus mutates through the replication process the reconstructed mutated version of the virus is known as a variant. As it starts its action when it comes in contact with healthy person, First of all it weakens person immunity with already weak immune system after this it start replication and multiplication in the body. Which result in other problems includes cough respiratory tract infection and various the signs and symptoms [11].

When a person with these symptoms is observed and testing was done. These mutated variants are known to be found in the test sample of that particular person than afterwards medication isolation of that person is done and performed. Mutations arise as the virus multiplies after it infects a human host. Firstly, it instructs human host, cell to make copies of the virus than go on to infect more and more cells and eventually other persons. As the virus rapidly multiply its genetic material random errors in its DNA can occur during the copying process. Mutations occur in people with weakened immune system and in unvaccinated people [17-20].

The most widely used vaccines are Pfizer Moderna and oxford Astrazeneca are based mainly on getting immune system to recognise the spike protein part of the SARS Cov-2 virus as foreign and building up an army of immune cells to kill the virus. To Overcome this deadly as well as dangerous wave of BF.7 variant public awareness should be spread regarding rapid transmissibility around the world companies are working on the developing. Vaccine based on the new variant but there may not be significant difference in efficacy from the existing doses. Vaccines that can target all mutating variants are also being discussed [21-22].

**Table: Concerned, Interest and under monitoring variants of 2022(21December) [23]**

Particulars	Country first detected (community)	WHO label (Lineage + additional mutations)	Spike mutations of interest
Variants of Concern (VOC)	South Africa	Omicron (BA.2)	G142D, N211I, Δ212, V213G, G339D, S371F, S373P, S375F, T376A, D405N, R408S, K417N, N440K, S477N, T478K, E484A, Q493R, Q498R, N501Y, Y505H, D614G, H655Y, N679K, P681H, N764K, D796Y, Q954H, N969K
		Omicron (BA.4) Omicron (BA.5)	L452R, F486V, R493Q L452R, F486V, R493Q
Variants of Interest (VOI)	India	Omicron (BA.2.75, including its sub-lineages; BN, CH and others)	W152R, F157L, I210V, G257S, D339H, G446S, N460K, Q493 - reversion
		Omicron (BQ.1)	K444T, N460K
		XBB (Recombinant lineage of BJ.; BA.2.10.1.1, and BM.1.1.1; A.2.75.3.1.1.1)	N460K, F490S
Variants under monitoring	-	Omicron (BA.2.3.20)	K444R, L452M, N460K
	-	Omicron (BF.7)	R346T, F486V
	-	Omicron (XBC - Delta (21I) / BA.2 recombinant. Omicron spike with Delta backbone	N440K, F486P
	-	Omicron (BN.1 - Monitored as BN.1 and its sub-lineages and as spike mutation proxy R346T, K356T, F490S)	R346T, K356T, F490S
	-	Omicron (CH.1.1 - Monitored as CH.1.1 and its sub-lineages and as spike mutation proxy K444T, L452R and NSP16-Q28R)	K444T, L452R

## CONCLUSION

Like other omicron variant the BF.7 has a very fast transmission one person can infected 10-18 other person and most important it is asymptomatic sometimes. The omicron BF.7 also has a great capacity to re-inject people who has a Covid-19 infection earlier and can even infect vaccinated individuals. People who are not vaccinated are at higher risk also with people with weaker immunity like old age people small children's pregnant women and their with cancer, Kidney or heart disease, while the rate of fatality as per the data is not high for this variant and in India, too there are very few cases of mortality and hospitalization. However, we should be more vigilant and should seriously follow Covid appropriate behaviours by wearing masks, social distancing, hand hygienic. It is very essential to get vaccinated and continue to follow. Preventive measure for curing the transmission of the virus.

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