

Review of: "Natural Polyphenols of Pomegranate and Black Tea Juices can Combat COVID-19 through their SARS-CoV-2 3C-like Protease-inhibitory Activity"

Alessandra Amendola¹

¹ Istituto Nazionale per le Malattie Infettive "Lazzaro Spallanzani" I.R.C.C.S.

Potential competing interests: No potential competing interests to declare.

The author mentions the interesting power of natural polyphenols of black tea and pomegranate juice (such as tannic acid, ellagic acid, theaflavin, etc.) in inhibiting the main protease 3-chymotrypsin of SARS-CoV-2. 3C-like protease (3CLpro) is a cysteine protease that hydrolyzes the viral polyproteins pp1a and pp1ab to produce essential functional proteins during replication.

Since the beginning of the pandemic, 3CLpro has been considered a key target protein in the fight against SARS-CoV-2 and COVID-19. Numerous in-depth studies have demonstrated that natural flavonoids, widely present in plant roots, leaves, fruits, propolis and bee honey, can play an active role on 3CLpro of SARS-CoV-2: quercetin and proanthocyanidins, ellagic acid, curcumin, epigallocatechin gallate and resveratrol, myricetin and dihydromyricetin. In addition, in silico molecular docking analyses and molecular dynamics simulations further supported the inhibitory potential of various natural polyphenols against the active site of the 3CLpro protease stimulating further research on these compounds.

The Author could implement the latest news reported in the scientific literature on the mechanisms of action of natural polyphenols towards SARS-CoV-2.

Furthermore, the author could highlight that the main polyphenols present in black tea, pomegranate juice and other compounds of natural origin exert potent inhibitory effects against many other non-SARS pathogens and numerous bacteria. Therefore, polyphenols in general deserve to be studied in depth to fully exploit their broad spectrum of action, especially when used synergistically, both against SARS-CoV-2 and many other microorganisms.