virus that has crossed the species barrier twice from

wild animals to humans during SARS and MERS

outbreaks (79, 102). The possibility of crossing the

species barrier for the third time has also been

suspected in the case of SARS-CoV-2 (COVID-19).

Bats are recognized as a possible natural reservoir

host of both SARS-CoV and MERS-CoV infection.

In contrast, the possible intermediary host is the

palm civet for SARS-CoV and the dromedary camel

for MERS-CoV infection (102). Bats are considered

the ancestral hosts for both SARS and MERS (103).

Bats are also considered the reservoir host of human

coronaviruses like HCoV-229E and HCoV-NL63

(104). In the case of COVID-19, there are two

possibilities for primary transmission: it can be

transmitted either through intermediate hosts, similar

to that of SARS and MERS, or directly from bats

(103). The emergence paradigm put forward in the

SARS outbreak suggests that SARS-CoV originated

from bats (reservoir host) and later jumped to civets

(intermediate host) and incorporated changes within

the receptor-binding domain (RBD) to improve

binding to civet ACE2. This civet-adapted virus,

during their subsequent exposure to humans at live

markets, promoted further adaptations that resulted

in the epidemic strain (104). Transmission can also