



## RELAZIONE ILLUSTRATIVA SULL'UTILIZZO DELL'EROGAZIONE LIBERALE

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Nome progetto: Erogazione liberale per le attività di ricerca sul Coronavirus

Codice identificativo Progetto: LIB\_VT20\_COVID\_19\_SDELBUE

Il fondo LIB\_VT20\_COVID\_19\_SDELBUE raccoglie le erogazioni liberali ottenute da diverse aziende nel periodo compreso tra il 17/07/2020 e il 24/02/2022 e per questo motivo la relazione dei risultati ottenuti si riferisce a diversi progetti. I risultati dei progetti più remoti sono stati sottomessi o pubblicati e la referenza bibliografica è riportata. Gli studi iniziati più recentemente non sono invece ancora completati e verranno ultimati entro Dicembre 2023, grazie anche all'acquisto di un citofluorimetro da banco, necessario per completare le analisi delle cellule infette.

### RELAZIONE 1: Erogazione Liberale BICT - Paper under submission

The aim of the present study was to evaluate the antiviral activity against SARS-CoV-2 of grape seed extract (GSE), and some of its components. GSE, Epicatechin (EC) and Gallic Acid cytotoxicity was assessed by MTT assay on Vero cells. Cells were infected with the SARS-CoV-2 B.1 strain at 0.05 MOI. Different doses of GSE were added to the cells as follows: 1 - pre-incubation of the virus with the GSE; 2 - treatment during virus inoculum; 3 - treatment of infected cells; 4 - treatment during and after virus inoculum. After 72 hours, SARS-CoV-2 load in cell supernatants was evaluated via quantitative real-time RT-PCR, and. Virucide activity was confirmed by Plaque Assay. GSE showed a dose-response activity (from 0.04 mg/mL to 0.3 mg/mL) on SARS-CoV-2 in vitro replication, when added after the inoculum. The reduction of infectivity, as verified by Plaque Assay, was more than 98% using 0.30 mg/mL. The effect of the association of EC and gallic acid, which constitute about 10% of GSE extract, was compatible with the activity of the total extract.

### RELAZIONE 2: Kenosistec - Paper under submission

Test specimens treated with IIT-BioGlassM were assayed for verifying the antiviral effect of BIO-K Glass against SARS-CoV-2, responsible for COVID-19.

The analysis was performed as indicated by standard method ISO 21702.2019 "Measurement of antiviral activity on plastics and other non-porous surface"<sup>1</sup>, with some modifications, detailed in this report. Under the test conditions applied, the IIT-BioGlassM showed significant antiviral effect against SARS- CoV-2, after 24 hours.

### RELAZIONE 3 - SIMACO - Paper published - DOI: 10.1111/php.13653

Proper use of UV equipment for disinfection requires an understanding of how the effects on SARS-CoV-2 are dependent on certain parameters. In this work, we determined the UV-C inactivation constant  $k$  for SARS-CoV-2 using an LED source at  $\lambda=280$  nm. Specifically, a Log3 reduction was measured after irradiation for 24 minutes with a delivered UV-C dose of 23 J/m<sup>2</sup>. By multitarget model fitting,  $n=2$  and  $k=0.32\pm0.02$  m<sup>2</sup>/J were obtained. A lag time for the inactivation effect was also observed, which was attributed to the low



irradiation levels used to perform the study. The combination of k and delay time allows for reliable estimation of disinfection times in small closed environments.

Firma del Responsabile<sup>1</sup>

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<sup>1</sup> Si consiglia, per maggior visibilità, di utilizzare la firma digitale in formato PADES (con estensione “\_signed.pdf”); si fa presente che le firme effettuate direttamente su cellulare o tablet non sono considerate valide.