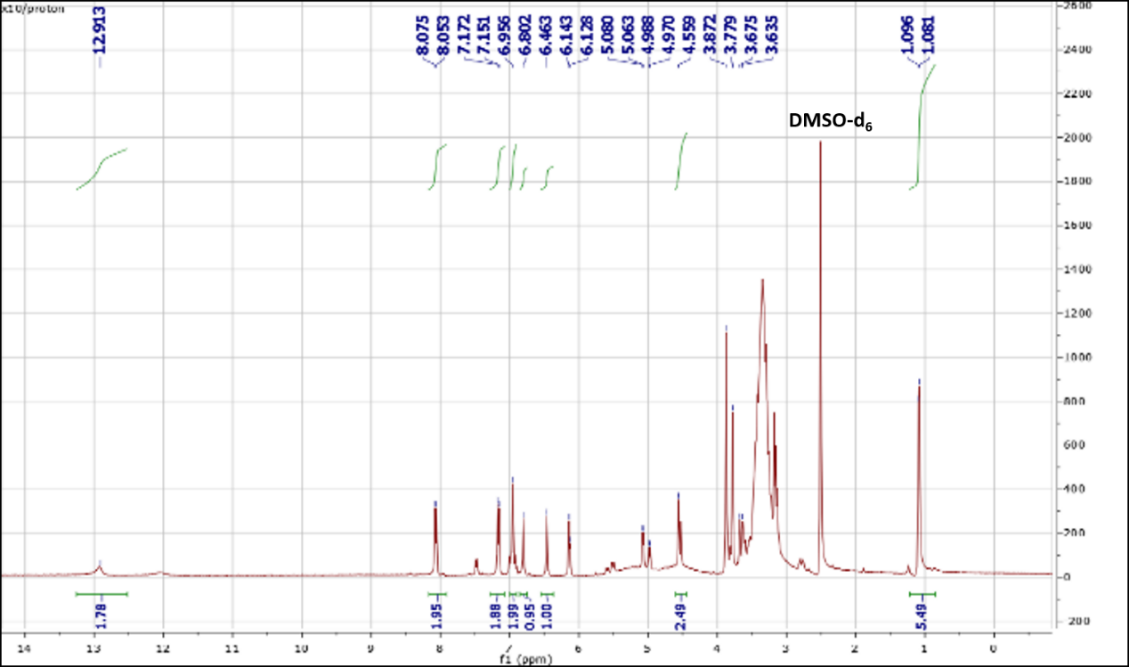
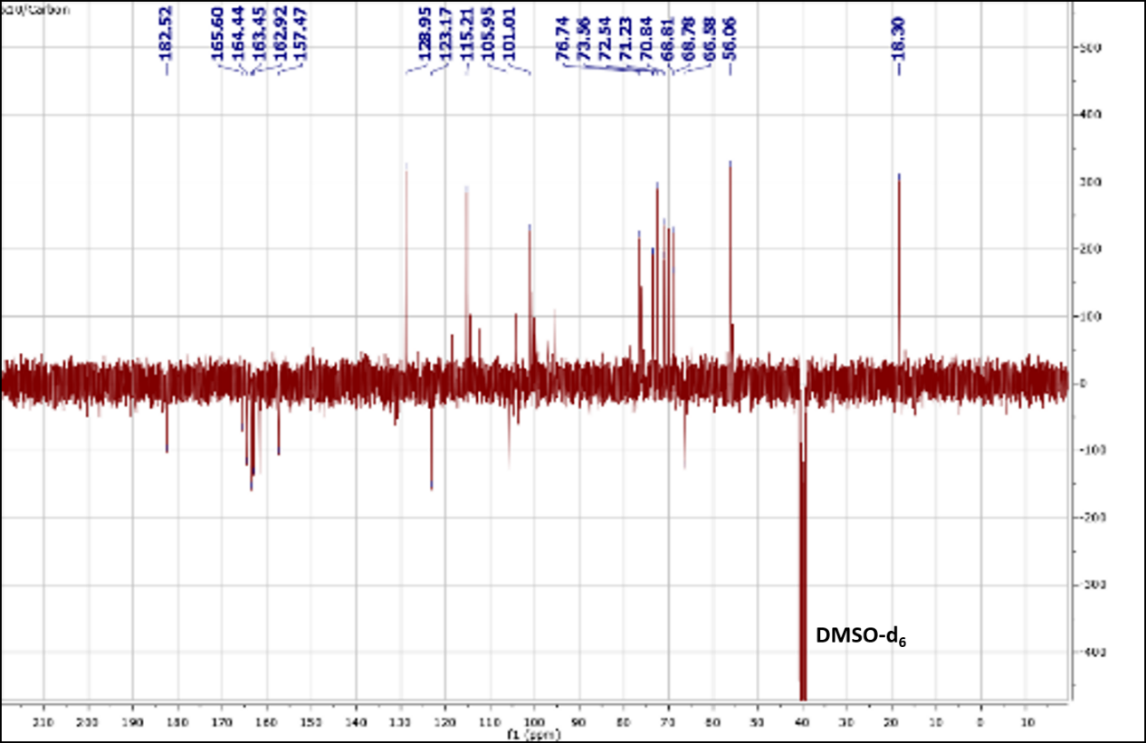
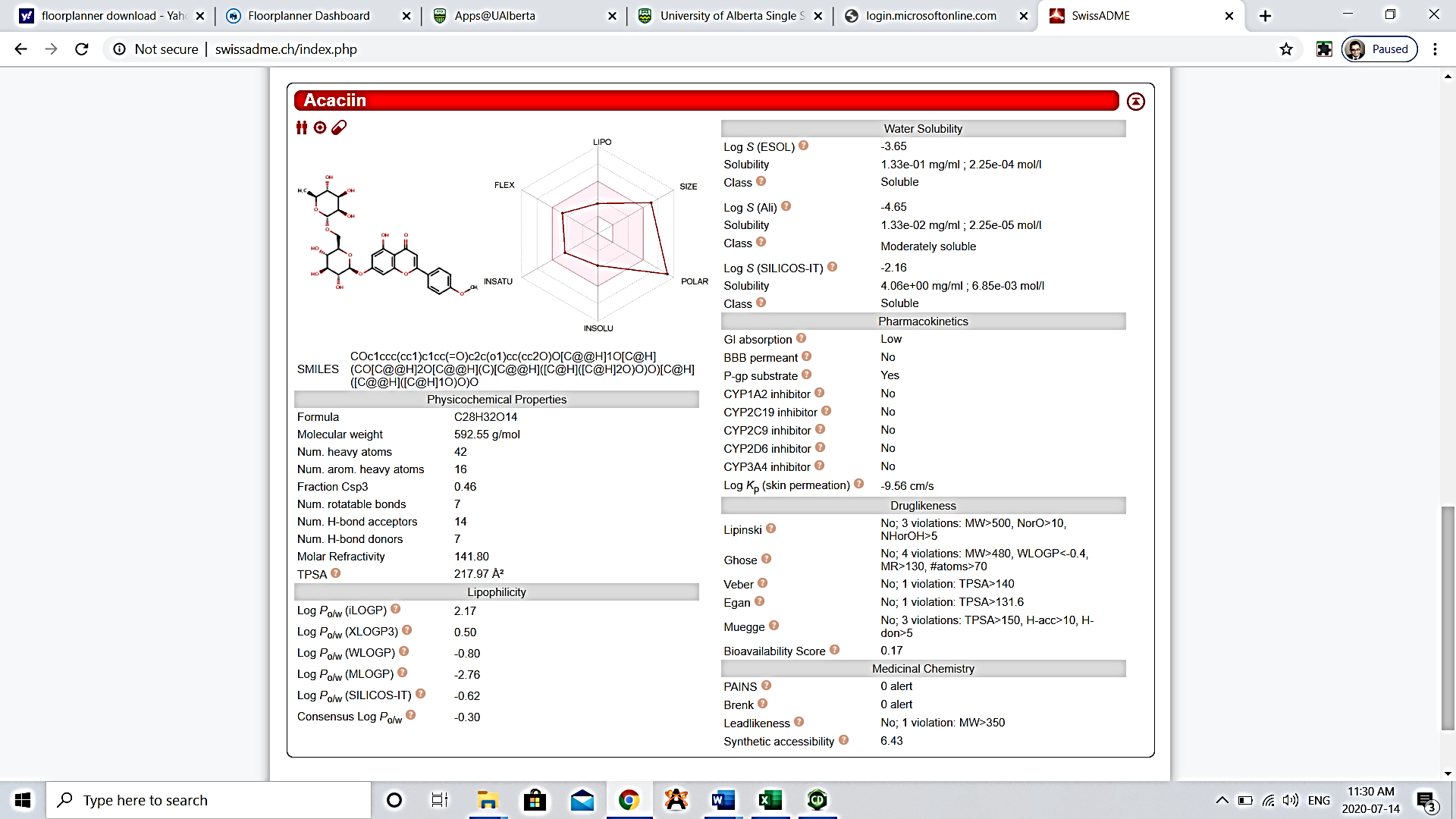
**Supplementary materials**

**New Acaciin-loaded Self-assembled Nanofibers as MPro Inhibitors Against BCV as a Surrogate Model for SARS-CoV-2**

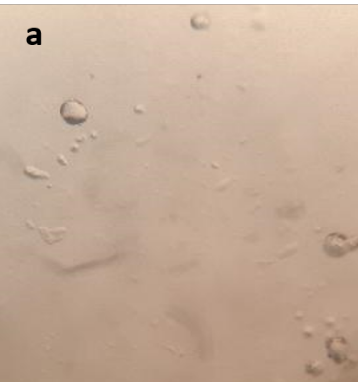
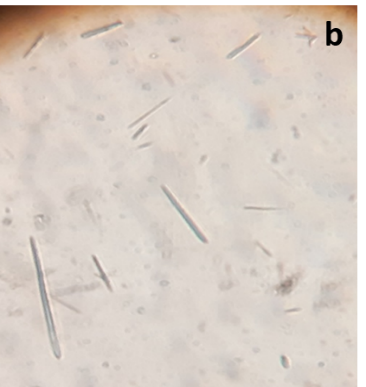
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**Figure. S1: a) 1H-NMR data (400 MHz, DMSO-d6), b) DEPT-Q 13C- NMR data (100 MHz, DMSO-d6) of acaciin.**



**Figure. S2: Swiss ADME prediction chart of acaciin**

**Figure. S3: LEM of a) PVA and chitosan NPs, b) Lecithin and chitosan NFs (magnification 200 X)**

**Table S1: Different physicochemical parameters of the formed NFs**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Formulations** | **EE (%)** | **DL (%)** | **Particle size (nm)** | **PDI** | **Viscosity** | **Ʒ-potential (mV)** |
| Form 1 | 54.07±0.48 | 2.7±0.37 | 200±23 | 0.2±0.1 | 8.887 | +51.8±2 |
| Form 2 | 76.6±0.83 | 4.3±0.34 | 232±15 | 0.25±0.5 | 9.32 | +53.7±3 |
| Form 3 | 97.5±0.53 | 4.9±0.76 | 220±13 | 0.2±0.02 | 10.235 | +50.9±3 |
| Form 4 | 39.4±0.28 | 3.9±0.43 | 308±27 | 0.57±0.1 | 10.878 | +58.7±1 |
| Form 5 | 43.3±0.41 | 4.3±0.34 | 257±32 | 0.43±0.5 | 12.34 | +49.5±1 |
| Form 6 | 43.3±0.42 | 4.3±0.31 | 258±23 | 0.3±0.1 | 13.9 | +44.3±4 |
| Form 7 | 28.9±0.45 | 4.3±0.34 | 330±44 | 0.42±0.5 | 11.9 | +43.1±0.2 |
| Form 8 | 25.3±0.13 | 3.7±0.9 | 358±10 | 0.57±0.3 | 12.87 | +45.7±3 |
| Form 9 | 28.9±0.45 | 4.3±0.34 | 380±18 | 0.61±0.1 | 13.12 | +45.4±3 |

**Table S2.  Results of antiviral MTT based assay on MDBK against BVDV by microplate reader**

|  |  |  |
| --- | --- | --- |
| **Group** | **Antiviral activity** | **Cell toxicity** |
| Acaciin (12.5 µg/ml) | 75.40 %a | 10.8 ± 0.1 %b |
| ACA-L/Cs NFs 10 ppm | 98.30 %a | 9.21 ± 0.01 %b |
| ACA-L/Cs NFs 6 ppm | 98.88 %a | 8.3 ± 0.16 %b |
| ACA-L/Cs NFs 3 ppm | 87.16%a | 5.00 ± 0.023 %b |
| ACA-L/Cs NFs 1 ppm | 78.14%a | 6.30 ± 4.31 %b |
| Cells only | 100a | 0 |
| Virus control | 0 | 100b |