**Supplementary Table 1.** Lipinski’s rule for of GC-MS based isolated compound from *H.tuberosus* assessed by the web tool of SwissADME.

| Compound                                                | Molecular Weight (Da) | Hydrogen Bond | LogP | Molar Refractivity | Rules Satisfied |
|---------------------------------------------------------|-----------------------|---------------|------|--------------------|-----------------|
| Salicylic acid β-D-glucoside                            | 299.07                | 5             | 8    | 0.98               | 67.55           | 5/5             |
| Neochlorogenic acid                                     | 353.08                | 6             | 9    | 0.96               | 83.50           | 4/5             |
| Caffeic acid                                            | 179.03                | 3             | 4    | 0.97               | 47.16           | 5/5             |
| 5-O-(4-Coumaroyl)-D-quinic acid                         | 337.09                | 5             | 8    | 1.08               | 81.48           | 5/5             |
| Feruloylquinic acid                                     | 367.10                | 5             | 9    | 1.47               | 87.97           | 5/5             |
| Cryptochlorogenic acid                                  | 353.08                | 6             | 9    | 1.23               | 83.50           | 5/5             |
| Pinellic acid                                           | 329.23                | 4             | 5    | 2.24               | 93.42           | 5/5             |
| Caffeoylquinic acid                                     | 354.31                | 6             | 9    | 0.96               | 83.50           | 4/5             |
| Isoxazolidine                                           | 73.09                 | 1             | 2    | 1.22               | 22.22           | 4/5             |
| β-Bourbonene                                            | 204.35                | 0             | 0    | 3.34               | 67.14           | 3/5             |
| 3-(4-Methylpiperidin-1-yl)propan-1-amine                 | 156.27                | 1             | 2    | 2.29               | 52.78           | 5/5             |
| Carbamic acid                                           | 61.04                 | 2             | 2    | 0.20               | 11.79           | 4/5             |
| 4-Amino-1,2,5-oxadiazol-3-ol                            | 101.06                | 2             | 3    | 0.20               | 21.53           | 4/5             |
| Pent-4-enamide                                          | 99.13                 | 1             | 1    | 1.20               | 28.58           | 4/5             |
| Morpholinoacetanitrile                                  | 126.16                | 0             | 3    | 1.49               | 36.49           | 3/5             |
| 3-Pyrrolidinol                                          | 87.12                 | 2             | 2    | 1.20               | 27.11           | 4/5             |
| 1,4 Dicaffeoylquinic acid                               | 516.45                | 7             | 12   | 1.91               | 126.60          | 3/5             |
| Camphene                                                | 136.23                | 0             | 0    | 2.58               | 45.22           | 3/5             |
| Hexanoic acid                                           | 116.16                | 2             | 4    | 1.57               | 32.73           | 4/5             |
| α-murrolene                                             | 204.35                | 0             | 0    | 3.38               | 69.04           | 3/5             |
| Cyclopentanol                                           | 86.13                 | 1             | 1    | 1.59               | 25.20           | 4/5             |
**Supplementary Table 2.** Molecular interaction of the α-Amylase and α-Glycosidase active site with selective phytocompound inhibito from *H. tuberosus*.

| PubChem ID | Phytocompound                              | Docking Score | No of H-bond | Interactive residues                  | Hydrophobic bond                  |
|------------|--------------------------------------------|---------------|--------------|--------------------------------------|-----------------------------------|
|            | **α-Amylase**                              |               |              |                                      |                                   |
| 5280633    | Neochlorogenic acid                        | -7.45264      | 2            | Asp300, Gln63, Glu233                | TRP59, LEU162, Asp300,            |
| 689043     | Caffeic acid                               | -6.99116      | 3            | Arg389, Glu390, Cys378               | Arg389, Trp388, Cys384, Thr377    |
| 9798666    | Cryptochlorogenic acid                     | -9.86082      | 4            | Glu390, Glu484, Val383, Arg343       | Glu484, Ala318, Val348            |
| 10155076   | Caffeoylquinic acid                        | -9.32055      | 3            | Asp300, Glu233, Gln63                | TRP59, Asp300, Leu162             |
| 3149264    | 3-(4-Methylpiperidin-1-yl)propan-1-amine   | -7.09424      | 2            | His299                               | Trp59, Tyr62, Asp197, Glu233, Asp300 |
| 10133609   | Feruloylquinic acid                        | -8.61385      | 3            | Tyr62, Ile235, Val234                | Tyr62, Ile235, Lys200, Ala198, His201, Glu233 |
|            | **α-Glycosidase**                          |               |              |                                      |                                   |
| 5280633    | Neochlorogenic acid                        | -10.7322      | 5            | Arg442, Gln279, His280, Thr310, Arg315 | Pro312, Phe159, Tyr158            |
| 689043     | Caffeic acid                               | -8.83794      | 3            | Phe433, Ser236, Lys156               | Ile419, Lys156                    |
| 9798666    | Cryptochlorogenic acid                     | -10.632       | 4            | Ser236, Asn317, His423, Asn235       | Asn415, Phe314, His423            |
| 10155076   | Caffeoylquinic acid                        | -10.7379      | 6            | Arg442, Glu411, Gln279, His280, Thr310, Arg315 | Pro312, Phe159, Tyr158            |
| 3149264    | 3-(4-Methylpiperidin-1-yl)propan-1-amine   | -7.34669      | 3            | Asp352, Gln353                       | Asp352, Glu377, Val216, Tyr158, His112, Phe178 |
| 10133609   | Feruloylquinic acid                        | -9.31426      | 4            | Asp69, Arg213, His351, Asp215        | Tyr72, Gln279, Phe303, Gln353, Arg315 |