

## **Green synthesis of silver nanoparticles using *Capsicum annuum L* extract**

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## Supporting Information

### Experimental details:

The *Capsicum annuum L* used in this experiment was persimmon-like *Capsicum* (a kind of *Capsicum annuum L*), and it looks like a “lantern”, widely cultivated and loved by local people, it is not so acidity as that of cusped *Capsicum* (also a kind of *Capsicum annuum L*). But for safe and getting a way of dusts, we handle the material with glove and do carefully during the extracting process. First, the *Capsicum annuum L* was washed with double distilled water several times to ensure no impurities were attached on them, and evaporated in the shade. Then, the cleaned *Capsicum annuum L* was putted into a juice extractor (*PHILIPS-HR1861, China*) for taking the juice of *Capsicum annuum L*, the extract was then separated by eccentricity of 2000 rpm for 5 min to remove the insoluble macromolecule. At last, the light green extract was collected for the subsequent reaction.

### Figures:

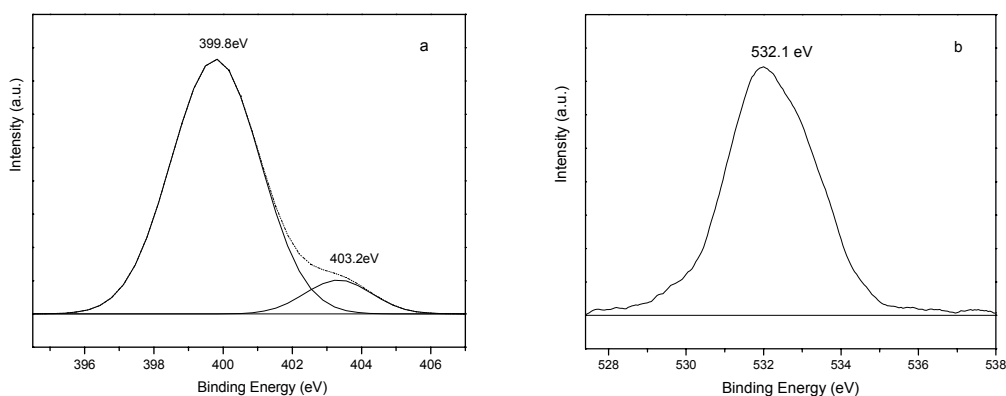


Figure S-1. XPS of N1s (a), and O1s (b) core level spectra recorded from solution (I).

Table 1. The frequencies and the percentages of the secondary structures of *Capsicum annuum L* proteins before and after reaction with silver ions

| Assignments | <i>Capsicum annuum L</i><br>Protein frequencies/cm <sup>-1</sup><br>% |       | After reaction with silver<br>ions of <i>Capsicum annuum L</i><br>protein frequencies /cm <sup>-1</sup> % |       |
|-------------|-----------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------------------------------|-------|
|             |                                                                       |       |                                                                                                           |       |
| β-sheet     | 1691.3                                                                | 2.33  | 1689.1                                                                                                    | 5.72  |
| β-turn      | 1679.5                                                                | 12.75 | 1674.3                                                                                                    | 17.79 |
| α-helix     | 1664.9                                                                | 21.46 | —                                                                                                         | —     |
| α-helix     | 1654.0                                                                | 17.63 | 1659.4                                                                                                    | 18.32 |
| random coil | 1645.4                                                                | 13.04 | 1648.6                                                                                                    | 16.84 |
| β-sheet     | 1638.2                                                                | 11.28 | 1638.7                                                                                                    | 14.74 |
| β-sheet     | 1631.8                                                                | 7.02  | —                                                                                                         | —     |
| β-sheet     | 1625.3                                                                | 7.35  | 1629.3                                                                                                    | 12.11 |
| β-sheet     | 1618.9                                                                | 3.82  | 1620.0                                                                                                    | 9.78  |
| β-sheet     | 1612.0                                                                | 2.93  | 1610.7                                                                                                    | 3.69  |
| β-sheet     | 1604.4                                                                | 0.39  | 1603.6                                                                                                    | 1.01  |

Table 2. The total percentages of the secondary structures of *Capsicum annuum L* protein / %

| Assignments                                               | β-sheet | β-turn | α-helix | random coil |
|-----------------------------------------------------------|---------|--------|---------|-------------|
| <i>Capsicum annuum L</i> protein                          | 35.1    | 12.8   | 39.1    | 13.0        |
| <i>Capsicum annuum L</i> protein reacted with silver ions | 47.1    | 17.8   | 18.3    | 16.8        |