What is claimed is:

1. A method for producing an induced pluripotent stem cell, the method comprising:

adding an *Ecklonia cava* extract to a cell culture medium in an amount of 100 to 400 μg/mL with respect to the cell culture medium composition; and

dedifferentiating a mesenchymal stem cell into an induced pluripotent stem cell in the medium.

2. The method of claim 1, wherein the cell culture medium is selected from the group comprising Dulbecco's Modified Eagle's Medium (DMEM), Minimal Essential Medium (MEM), Basal Medium Eagle (BME), RPMI 1640, F-10, F-12, DMEM-F12, α-Minimal Essential Medium (α-MEM), Glasgow's Minimal Essential Medium (G-MEM), Iscove's Modified Dulbecco's Medium (IMDM), and McCoy's 5A Medium.

3. The method of claim 1, wherein the cell culture medium further comprises 0.01 to 10 v/v% of purified deionized water containing SiO_2, Al_2O_3, TiO_3, Fe_2O_3, CaO, Na_2O, K_2O, and LiO.