Bacterial cellulose (BC) is a versatile material produced by microorganisms in form of a membranous hydrogel, totally biocompatible and endowed of high mechanical strength. Its high water holding capacity based on its high porous nanofibrilar structure allows BC to incorporate and to release substances very fast, thus being suitable for the preparation of skin care masks. The preparation and characterization of cosmetic masks based on bacterial cellulose membranes and active cosmetics is reported. The masks were prepared through the simple incorporation of cosmetic extracts into BC membranes, used as swelling matrix. The masks were characterized by SEM, sensory tests and skin moisture tests on volunteers. The results of sensory tests revealed the good performance of BC, being considered effective by the panel of volunteers, specially for adhesion to the skin, and improvement of the skin moisture, indicating the BC nanofibers membranes are appropriate to skin care applications.