present disclosure is to provide an industrially convenient and safe preparation method. A fifth object of the present disclosure is to provide a crosslinked collagen gel, which has significantly improved quality and confidence, and thus can present a good image to consumers, and the preparation method and use thereof.

Summary

In one aspect of the invention, there is provided a method for preparing a radiation- crosslinked collagen gel, the method comprising irradiating liquid collagen with radiation to prepare a crosslinked collagen, and wherein the method comprises mixing 3% (W/V) of collagen with each of 3% (W/V) of synthetic polymer Pluronic F-127, 1% (W/V) of PEO (polyethylene oxide (M.W. = 100,000) and 3% (W/V) of hydroxyapatite and crosslinking the mixture by irradiation with gamma-rays.

In another aspect, there is provided a radiation-crosslinked collagen gel prepared by the method as defined herein.

In another aspect, there is provided a method of using a radiation-crosslinked collagen gel, the method comprising: obtaining a partially crosslinked collagen using a low dose of radiation; pouring the partially crosslinked collagen together with a gelling solution into a mold to form a gel; pouring cells and a medium on the gel; culturing the cells on the gel; and using the cultured material (hydrogel) in a mixture with a cosmetic component, or using the hydrogel as a mask pack in a mixture with a cosmetic component, or using the hydrogel as a wound dressing, or applying the hydrogel to an injured skin, or using the hydrogel as a skin graft material.

Technical Solution

To achieve the above objects, the present disclosure provides a method for preparing a crosslinked collagen gel, the method comprising irradiating liquid collagen with radiation to prepare a crosslinked collagen.

The present disclosure also provides a method of preparing a crosslinked material by mixing a biocompatible material and liquid collagen and irradiating the mixture with radiation, and a method of using the crosslinked material as a tissue repair material for wound healing, a skin graft, a bone graft or the like.

The present disclosure also provides a method of using a hydrogel of the present disclosure in a mixture with a cosmetic component, or using the hydrogel as a mask pack in a mixture with a cosmetic component, or using the hydrogel as a wound dressing.

The present disclosure also provides a method of using a radiation-crosslinked collagen gel, the method comprising: obtaining a partially crosslinked collagen using a low dose of radiation; pouring the partially crosslinked collagen together with a gelling solution into a mold to form a gel; pouring cells and a medium on the gel; culturing the cells on the gel; and using the cultured material (hydrogel) in a mixture with a cosmetic component, or using the hydrogel as a mask pack in a mixture with a cosmetic component, or using the