

3rd Annual Conference and Expo on

BIOMATERIALS

March 05-06, 2018 | Berlin, Germany

An alternative production method for collagen to obtain scaffolds

I Deniz Derman¹, Cem Arslan¹, Selçuk Kaan Hacısmaoğlu² and Murat Kazancı²¹Bahçeşehir University, Turkey²Medeniyet University, Turkey

Background: Collagen is a basic structural element in native extracellular matrices, and its abundant presence in natural tissues, composing 30% by weight of body, protein tissues, predestines it as a polymer for biomedical materials and tissue engineering matrices. It is generally extracted from the natural tissues by treatments with acid or alkali, enzyme, and microorganisms. However, these methods are generally dependent on batch type and reactants, time and energy consuming, and highly costly methods. In this paper, we discuss an alternative method that could be applied on different tissues to extract collagen. It decreases the time and energy consumption and the usage of environment hazardous chemicals.

Methods: In this study, we developed an improved method that reduces the time needed to extract this protein and increase the efficiency. The results were compared with the one obtained from the traditional methods. The alternative method uses traditional extraction buffers combined with forceful agitation and centrifugal filtration to obtain highly-pure, soluble collagen extraction.

Results: This method is simple to perform using standard methods and equipment found in many laboratories. By employing high-speed agitation, this protocol reduces the time necessary to isolate solution, collagen extraction from approximately 7 days to less than 3 hr.

Conclusions: This paper indicates that these waste materials of animals have potential in supplementing the skin of land vertebrates as a source of collagen. The end product (collagen) could be used in many different applications, ranging from drug carrier systems to tissue scaffolds and reconstructive surgery.

ideniz95@hotmail.com