Infection control is also a significant unaddressed need in debridement. Burn eschar is typically dry necrotic tissue not readily infected, but sepsis can occur with second and third degree burns; therefore, having antimicrobials in the eschar and wound bed during early stages of eschar (necrotic tissue) removal is highly desirable. In contrast to burn eschar, chronic wound (diabetic ulcer) necrotic tissue appears to promote bacterial colonization, supported by the presence of water and nutrient sources from dead cells and debris. Necrotic tissue in wounds may be associated with infection, while a majority of chronic wounds are infected with microorganism biofilm.

A difficulty in the use of proteolytic enzymes for debridement of necrotic tissue is their ability for auto-digestion in aqueous solution, in addition to their potential difficulty with adverse allergic events, hypersensitivity and/or lack of efficacy. It is thus desirable to identify a debridement composition, having a high debridement efficacy for necrotic tissue, that is clinically simple to use, exhibits a suitable shelf-life, and is non-allergenic.

SUMMARY OF THE INVENTION

In one aspect, there is provided a debridement composition comprising:

0.001 to 60 wt % of a non-proteolytic enzymatic debriding component based on a total weight of the debridement composition,

wherein said non-proteolytic enzymatic debriding component comprises at least 80 % by weight of an amylase based on a weight of said non-proteolytic enzymatic debriding component.

In one aspect, there is provided a kit comprising:

a debridement composition as described herein; and

instructions for using the debridement composition for debridement of devitalized tissue.

In one aspect, there is provided a method of debridement of devitalized tissue comprising contacting a debridement composition as described herein with an area of skin in need of debridement.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a graph of frequency versus modulus for collagen gels before and after treatment with different enzymes.

Figure 2 is a graph of frequency versus complex modulus for collagen gels before and after treatment with different enzymes.

Figure 3 is a graph of weight percent boiled pig skin digested verses α-amylase concentration after one hour at room temperature.

DETAILED DESCRIPTION OF THE INVENTION

In this investigation a novel composition and approach to enzymatic debridement is considered through the presumed cleavage of glycosidic bonds in and/or between glycosaminoglycan polysaccharides and collagen fibrils, and not by cleavage of peptide bonds of collagen by proteases, as has been done with previous enzymatic debridement products. It was unexpectedly found that amylase, an enzyme noted for cleavage of α-1,4-glycosidic bonds, such as in the catalyzed hydrolysis of starch into low molecular weight sugars, is effective in the debridement of devitalized or necrotic tissue. These unique compositions provide high efficiency enzymatic debridement compositions, with a suitable shelf-life, without allergic reactions.

The debriding formulations described herein contain various types of the enzyme amylase. Amylases (α-, ß-, γ-amylase) are a family of enzymes that preferentially hydrolyze the α-glycosidic bonds of polysaccharides, yielding lower molecular weight carbohydrate/sugar fragments. In some