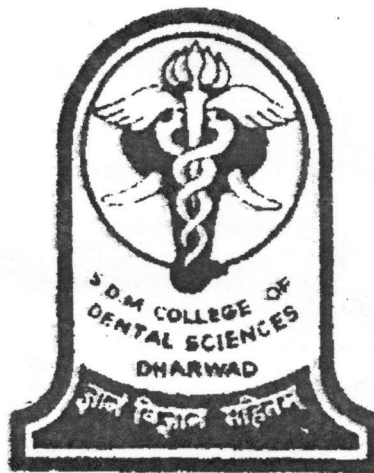


MATRIX METALLOPROTEINASES AND ITS INHIBITORS-A REVIEW



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Periodontitis is a chronic inflammatory disease causing destruction of the attachment apparatus of teeth. Progression of the periodontal lesion during the inflammatory process is the consequence of breakdown of the collagenous Sharpey's fibers anchored in the root cementum. Degradation of the collagenous matrix involves the activity of a group of enzymes known as matrix metalloproteinases.

These matrix metalloproteinases are an important subfamily of zinc and calcium dependent endopeptidases secreted or released by a variety of host cells such as polymorphonuclear leukocytes, macrophages, fibroblasts, bone, epithelial and endothelial cells, that function at neutral pH and utilize the various constituents of the extracellular matrix as their substrates, and are responsible for their remodelling and degradation.⁽³¹⁾ These molecules degrade interstitial and basement membrane collagens,⁽²⁾ gelatins⁽²⁾ fibronectin, elastin, laminin, Vitronectin⁽²⁾ and the proteoglycan core protein etc. These proteinases are involved in a number of physiological events such as embryological development, tissue remodelling, wound healing, salivary gland morphogenesis and tooth eruption, in addition to various pathological processes such as periodontal disease, arthritis, cancer, atherosclerosis, pulmonary emphysema and osteoporosis.⁽³¹⁾

The MMP family can be divided into three major subgroups, the interstitial collagenases (MMP-1, MMP-8) gelatinases (type IV collagenase