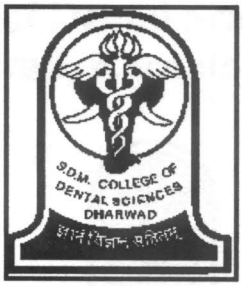

MINERALIZATION IN HEALTH AND DISEASE

LIBRARY DISSERTATION

Submitted to the
Department of Oral Pathology & Microbiology in partial fulfillment

MASTER OF DENTAL SURGERY (M.D.S)

in

ORAL & MAXILLOFACIAL PATHOLOGY & MICROBIOLOGY

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A mineral is a naturally occurring inorganic solid with a definite chemical composition and crystalline structure that serve specific functions in the body. The important minerals include calcium, phosphorous, iron, sodium, potassium and magnesium. The other common minerals are quartz or feldspar. Minerals appear in combination with organic compounds for the calcium phosphate in bone or singularly such as free calcium in intracellular fluid.[1]

When teeth first form they are composed of soft tissue resembling the consistency of a jellyfish. As the body matures, this soft tissue mineralizes by a process of incorporating minerals into its specialized soft tissue making the teeth and bone hard and strong. Calcification or mineralization can be defined as the formation of calcium phosphate or other calcium compounds. In mineralization these inorganic deposits are formed with an organic matrix controlling their shape, size and orientation. In situ deposition is an alternative to avoid the usual difficulties found in sol-gel processes, such as particular aggregation.[2]

In the process of formation of the calcified tissues, fibres and matrix must first be laid down and calcium salts then deposited in to the matrix.[3]

Mineralization is of two types namely physiological and pathological mineralization.

Physiological mineralization occur in hard tissues like bone and teeth and pathological mineralization, where the calcification occurring in soft tissues other than teeth or bone, it is also known as heterotropic calcification.[4, 5, 6]