**Lec 4- –**

**Factors Affecting Growth of
Microorganisms in the oral cavity**

**10 Temperature;**

**2. REDOX Potential / Anaerobiosis;**

**3. pH;**

**4. Nutrients (endogenous & exogenous (diet);**

**5. Host Defences (Innate & Acquired immunity);**

**6. Host genetics (changes in immune response etc);**

1. **Temperature**

**Relatively constant - 34˚-36 ˚;**

**Life allows a large number of microorganisms;**

**The temperature is variable on the teeth and mucosa;**

**When eating microorganisms colonized there are exposed to extreme temperatures;**

**No evidence of metabolic disorders in microorganisms to these short periods.**

1. **pH, or hydrogen ion concentration**

**Affects their metabolism;**

**In the mouth pH varies between 6.7 and 7.3;**

**It is maintained by saliva through:**

**salivary flow;**

**buffer systems;**

**In an acid medium in the eco niches are developed:**

**Lactobacillus;**

**Str. mutans;**

**In the gingival sulcus pH is alkaline -7.5 - 8.5;**

**In the gingival fluid pH is 7,5 - 7,9 . It develops periodonto-pathogenic microorganisms.**

1. **Redox potential and aerobiosis**

**Under the action of the enzymes some of the components are subjected to oxidation, and others to reduction;**

**These processes depend on the oxygen and are redox potential;**

**In a predominance of reduction processes have a negative redox potential and develop anaerobic microorganisms;**

**With positive redox potential are buccal and palatal mucosa and the back part of the tongue;**

**With negative redox potential are approximal surfaces, fissures and gingival sulcus.**

1. **Nutrients**

**Desquamated epithelial cells;**

**Gingival fluid;**

**Saliva;**

**Residues from host`s food;**

**Products of metabolism of other microbial species.**

1. **Host factors**

**Host defense mechanisms;**

**Hormonal changes;**

**Stress;**

**Genetic factors.**

1. **Relationships with the host**

**Host defenses in the mouth:**

**Epithelial cells:**

**Barrier function;**

**Innate immunity - sensors (Toll-like receptors);**

**Inflammatory mediators, antimicrobial peptides;**

**Salivary antimicrobial factors - DENT 5302;**

**Mucosal antibodies (secretory IgA);**

**Cell-mediated immunity (T-cells);**

**In most cases, host defenses tolerate oral bacteria**

**The predominant relationships are commensal.**