



Impact of antibiotic and heavy metals sensitivity on oral isolate: A case study

Essam A. Makky^{1*}, Muna Jalal Ali^{1,2} and Mashitah M. Yusoff¹

¹Faculty of Industrial Sciences & Technology, Universiti Malaysia Pahang, Gambang, Kuantan, Pahang, Malaysia

²Department of Pathological Analyses, Al-Haweeja Technical Institute, Foundation of Technical Education, Kirkuk, Iraq

ABSTRACT

Tooth decay are considered the most common in the world. The study aims to isolation and identification of important bacteria related to tooth decay, determining the sensitivity of bacteria of certain types of antimicrobial agents and studying the effect of heavy metals on bacterial isolates. A total (50) swabs were collected from mouths of patients from both gender and their ages range from 1-60 years which are referred to consult the dental clinics and specialized centers, in order to isolate and identify the causative agents that associated with oral diseases. The age stage group of infection rates showed groups (20-40) and (1-20) were the most infected compared to elder group (40-60) as was the incidence of 44and 32% respectively The antibiotic sensitivity test against the isolates showed the chloramphenicol up to 83.05% was the higher effect sensitivity of Gentamicin and Rifampicin up to 81.35% .While streptomycin 16.94% and penicillin G 64.40%. Also, these differences were found have lower effect for isolates against (7) heavy metals, where it showed resistance to Silver nitrate, Iron chloride, Zinc chloride, lead acetate to100%, while appeared sensitivity to mercury, cadmium and copper sulfate by 100,86.44and 1.69% respectively.

Keywords: Tooth decay; Bacteria; Antibiotic; Heavy metals

INTRODUCTION

Tooth decay is one of the most common infectious diseases affecting millions of people globally [1]. One of the occasional factors for the disease is dental biofilm, which is the bacterial charge that forms permanently on the tooth surfaces [2]. Hazard factors of the disease compose of unsuitable salivary flow, low quality of salivary buffer, incomplete fluoride exposure, and increase consumption of sugar [3]. Caries indicate to the centralize demolition of susceptible dental hard tissues by acidic by products from the bacterial fermentation of dietary carbohydrates [4]. It is a chronic disease that advances tardily in extreme people. It can be seen on smooth, hole and fissured surfaces of the crown and root of a tooth. According to the WHO) 60 – 90 % of school children worldwide have dental cavities [5].This decay is the result of the interaction of the oral micro flora plaque , the tooth surface, nourishment and the oral environment over time and results in a carious harm of the tooth enamel [6]. However in recent years overall happening of this disease has fall in industrialized nations, caries average are increasing in developing nations [7]. Moreover, caries spread is not evenly dole out across the population and communities with the highest happening are generally those in lower socioeconomic groups that have finite access to adequate oral health care [8]. In spite of the fact that studies display a decline in caries in the US , 10 billion are spent in this country each year on treatment of tooth decay [9]. In other industrialized nations such as the UK and China, caries prevalence in the past contract has been over 50 % in children. In developing countries, where oral health care is safely low available, caries average are increasing at an alarming rate. Studies done in the past contract in nation such as the Peru, Mexico, Philippines and Taiwan, detected caries in 75 - 90% of children [10].