



Republic of Iraq
Ministry of Higher Education
and Scientific Research
University of Baghdad
College of Dentistry



**DETECTION OF *HELICOBACTER* PYLORI AND
THEIR VIRULENCE GENES *VACA* AND *CAGA* IN
SALIVA OF IRAQI ADULT PATIENTS
SUFFERING FROM GASTRITIS (WITH AND
WITHOUT *H.PYLORI*)**

A thesis

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Baghdad in Partial Fulfilment of the Requirements for the Degree of
Master of science in Oral Microbiology

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ABSTRACT

Background: *Helicobacter pylori* is a Gram-negative spiral-shaped bacteria that infects up to 50% of the global population. It has been identified as one of the major risk factors for acute and chronic gastritis, peptic ulcer disease, gastric cancer, and low-grade gastric mucosa associated lymphoid tissue lymphomas. The oral cavity has been identified as a possible *Helicobacter. pylori* reservoir, and may therefore be involved in the reinfection of the stomach, which may occasionally occur after treatment for an *H. pylori* infection.

Aim of study: Detection of *Helicobacter pylori* bacteria and their virulence genes (Vac A and Cag A) in saliva of patients with gastritis and control group by using molecular and immunological methods.

Materials and Methods: Un stimulated saliva and blood samples was collected from sixty subjects in the early morning between 7-8 Am in Gastroenterology and Hepatology Hospital -Baghdad medical city, in period between December 2020 to April 2021. All of the participants are adult aged between 20-65 years, the participants were divided equally into two groups, positive *H. pylori* (patient group) and negative *H. pylori* (control group) as they detected by specialist histopathologist, the endoscopic diagnosis was done with the assistance of the consultant physician at the Endoscopy Department. Saliva was collected in a graduated cup in order to determine the salivary flow rate, whereas salivary potential of hydrogen was measured directly using a pH meter to prevent any degeneration of the sample, then centrifuged at 10,000 rpm for and clear supernatant was collected for further measurement of nitric oxide level, the rest of collected saliva used for molecular analysis to detect *Helicobacter pylori* DNA by PCR techniques using 23S rRNA and 16Sr rRNA primer and probe specific for *Helicobacter pylori*. ELISA technique

was used for detection and estimation the level of specific IgG antibodies against *Helicobacter pylori* in serum.

Result: The results clarified that the amplification of 16S rRNA gene were positive for 16/30 (53.33%) in saliva samples of the patients by using conventional PCR, while, 3/30 (10.00%) saliva sample gave positive result in control group. In patients, all of the samples were positive for vacA gene 16/16 (100), while only 5 of 16 saliva samples was positive for cagA gene (31.25%), whereas in control, 3/3(100%) were positive for the two genes. No one of saliva samples was positive to the amplification of 23S rRNA gene by using Real- time PCR. Serum IgG level appeared positive 24/30 (80%) in patients sample, while 6/30 (20%) gave negative results, in contrast with control, the result were positive in 25/30 (83.33%) serum samples, and 5/30 (16.67) gave negative results.

According to the relation between the positivity of *H. pylori* detection by PCR technique and salivary flow rate, salivary pH and salivary Nitric oxide, the correlation were weakly negative in patient group, while in control, were weakly positive, but with no significant correlation among them.

Conclusions: The presence of *H. pylori* in the oral cavity may not represent an active cause of gastritis, and it could be suggested that the detection of *H. pylori* in the oral cavity can occur independently from gastric colonization, additionally, it is cannot depend on saliva samples for the detection of *H. pylori* infection due to the low percentage of the positive samples. Finally, it can conclude that conventional PCR and Real- time PCR technique is a non-invasive, feasible, but not reliable test for the detection of *H. pylori* in saliva sample.

جمهورية العراق

وزارة التعليم العالي والبحث العلمي

جامعة بغداد

كلية طب الاسنان



**التحري عن بكتيريا الملوية البوابية و جيناتها الفائعة *VacA* و *CagA*
في لعاب العراقيين البالغين الذين يعانون من التهاب المعدة
(بوجود وعدم وجود الملوية البوابية)**

رسالة

مقدمة الى مجلس كلية طب الاسنان في جامعة بغداد كجزء من متطلبات
نيل درجة الماجستير في علوم الاحياء المجهرية الفموية

من قبل

راوية عبد الرزاق محمود

بكالوريوس علوم حياة

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بكالوريوس وماجستير ودكتوراه احياء مجهرية