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Identification of *Gardnerella vaginalis* in bacterial vaginosis among symptomatic women in Duhok city, Kurdistan

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Gardnerella vaginalis bacteria; is considered the most relevant organism associated to Bacterial Vaginosis (BV), which is leading to vaginal disorders. The aim of this study was to apply the DNA sequencing technique for *Gardnerella vaginalis* strains and compare the strains obtained in this study with other international strains. PCR products of (15) *G. vaginalis* isolates that have been sent for sequencing all of them have been sequenced successfully and then aligned with the sequences in the GenBank database using BLAST program. The results of Mole-BLAST Tree were showed that the samples Bland_GVK_(14,6,3,10) were had similarity (99%) to *G. vaginalis* strain under the Accession number (AP012332.1/ USA), while the remain samples (1, 2, 5, 7, 8, 9, 11, 12, 13, 15 & 16), were found close to the strain of *G. vaginalis* with similarity (99%) under the Accession number (CP002725.1/Japan). Phylogenetic tree showed the similarity and evolutionary relationship between the sequenced samples and reference sequences in GenBank database. The Phylogenetic analysis also revealed that the genus *G. vaginalis* comprises a single species; shows *G. vaginalis* form a distinct clade within the Bifidobacteraceae family most closely related to *Bifidobacterium scardovii*.

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Isolation, identification and characterization of two co-metabolic biodegradation of linear alkylbenzene sulfonate strains

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Two bacterial strains which could degrade linear alkylbenzene sulfonate (LAS) by co-metabolism mechanism, named as L-2 and L-15 were isolated from the activated sludge of aeration tank and the secondary sedimentation pool in Shenzhen sewage treatment plant. Based on physiology and 16S rRNA gene sequence analysis, L-2 was determined to *Klebsiella* sp., while L-15 was identified as *Enterobacter* sp. The degradation rates were only 1.1% and 5.9% when they utilized LAS as the sole carbon and energy source. The degradation rate of LAS (50 mg/L) by L-2 was up to 94.2% when glucose was chosen as growth substrate under the conditions as: 30o C, pH 7.5, the mass ratio of glucose and LAS 20:1. The degradation rate of LAS (50 mg/L) by L-15 was up to 92.2% under the conditions as: 30 oC, pH 7.5, the mass ratio of glucose and LAS 16:1. Above results demonstrated that the two bacterial strains could degrade LAS in waste water effectively by co-metabolism mechanism.

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