

## Detection of *Leptospira interrogans* in Kidney and Urine of water Buffalo and its Relationship with Histopathological and Serological Findings

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**Abstract :** This study was carried out on water buffalo for detection of *Leptospira interrogans* in kidney and urine and its relationship with serological findings. Blood, urine and kidney samples were taken immediately after slaughter from 353 water buffalos at Ahvaz abattoir in Khouzestan province, Iran. Sera were initially screened at serum dilution of 1:100 against seven live antigens of *Leptospira interrogans*: pomona, hardjo, ballum, icterohemorrhagiae, tarasovi, australis and grippityphosa using the microscopic agglutination test (MAT) and sera with positive results were titrated against reacting antigens in serial twofold dilution from 1:100 to 1:800. The samples of kidney were embedded in paraffin wax and 5µm thick sections were stained routinely with Haematoxylin and Eosin (H&E). Polymerase chain reaction (PCR) examination was done on urine and kidney by using LipL32 gene primers. Antibodies against one or more serovars at dilution >:100 were detected in sera. The most frequent reactor was hardjo (56.2%), followed by pomona (52.3%), australis (9.8%), tarasovi (5.9%), grippityphosa (4.5%) and icterohaemorrhagiae (3.9%). The *L. interrogans* were detected in 43 (12.2%) of examined buffaloes, so that 26 (8.2%) of kidney tissues, 14 (4.8%) of urine samples separately and 3 (0.84%) of both kidney and urine samples were positive in PCR. From 153 (43.3%) buffaloes with positive MAT, 24 cases were positive by PCR of kidney and/or urine samples, synchronously. Renal lesions such as interstitial nephritis, acute tubular necrosis (ATN), pyelonephritis, glomerulonephritis, renal fibrosis and hydronephrosis were found in 128 (36.3%) cases. Statistical analysis indicated that there was no significant association between results of MAT, PCR and interstitial nephritis.

**Keywords :** leptospiral infection, PCR, MAT, histopathology, river buffalo

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