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Structural modifications of kidney cystatin in renal cancers

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In our study, renal cancer is induced in rats making use of dimethylnitrosamine (DMN). G1 – Group 1 were control rats and G2 – Group 2 rats were given a single intra-peritoneal injection of DMN of 50 mg/kg body weight resulting in 100% incidences of renal tumors after 12 months. SEM and histopathology confirmed the presence of renal cancer in the DMN-treated rats. Making use of ammonium sulfate precipitation and gel filtration chromatography on Sephacryl

S-100HR column, a thiol protease inhibitor was isolated from kidney of control rats known as Rat kidney Cystatin (RKC) as well as from kidney of cancerous rat called as Cancerous Rat Kidney Cystatin (CRKC). Both these inhibitors were characterized, and interestingly, it was found that CRKC showed greater anti-papain activity and also it was stable in a broad pH and temperature range thus implying that CRKC is more stable as compared to RKC. UV and fluorescence spectroscopy point out in structural difference between RKC and CRKC which was further confirmed by Circular dichroism (CD) and FTIR spectroscopy. Our study clearly showed that kidney cystatin is structurally modified in the case of renal cancer and performs its role in a more efficacious manner.

Biography:

Mohd Anas Shamsi is a Research Fellow at the Department of Biochemistry, Aligarh Muslim University under the supervision of Prof. Bilqees Bano since 2014. He has published 8 papers in reputed journals of protein biochemistry and his work is primarily devoted to kidney mainly rat and buffalo kidney as these organisms are being used as model organisms for various studies related to humans. He completed his Bachelors with an aggregate of 81% and his Masters with an aggregate of 75%. He is currently a BSR-JRF Fellow and also has qualified CSIr-NET and GATE. He has attended several reputed confernce most recently being 4th Nanotoday held in Dubai, UAE.