Clinical Hepatology

**IDDF2019-ABS-0018** EVALUATION OF ANTI-CANCEROUS AND GENOTOXIC MECHANISMS VIA GENE EXPRESSION ANALYSIS OF VARIOUS EXTRACTS FROM THERMOPSIS TURCICA IN LIVER CANCEROUS CELL LINE

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**Background** The hepatocellular carcinoma is a devastating disease and it’s a fifth common cancer. It has increased from the last ten years and the third commonest cause of cancer-related death. Many species of Thermopsis have been used as a source of traditional oriental medicines. Its many species are endemic in different regions of the world, for example, Thermopsis turcica (T. Turcica) is endemic to turkey. The current study was designed to investigate the anticancerous and apoptotic mechanisms via gene expression analysis of various extracts from T. turcica in HepG2 cell line.

**Methods** Different doses of T. turcica extracts were used in MTT assay; cytotoxic and non-cytotoxic concentrations were used in comet test and qRT PCR to find the genotoxicity and gene expression analysis of apoptotic and repair genes.

Results In MTT cytotoxicity assay, Ethyl acetate extracts showed the highest cytotoxic effect, compared to other extracts. Methanol had more effect at a higher concentration compared to ethanol. Water and hexane had the least cytotoxic effects. Depending upon the MTT results, cytotoxic and non-cytotoxic doses were selected as 200 μg/ml and 50 μg/ml, respectively. Ethyl acetate showed the highest DNA damage (22.33±1.52) at cytotoxic concentration. While least was observed in water extract (8.33±1.73; 4.33±0.57) at both concentrations, respectively. All groups were significantly differ (P>0.05) from the control group at 200 μg/ml concentration. Up regulation of the p53, p21, Cyclin D1, NFkB, TRAIL-R1 and TRAIL-R2 was observed, Whereas, down-regulation was observed in PCBP4, Bax, bcl-2 and bcl-xl genes at all concentrations of the all extracts. Caspase 3, 8 and 7 were also expressed at all doses of different extracts, except for the hexane and water, where they were down-regulated. DNA repair genes were up regulated except at the non-cytotoxic concentrations of hexane and at both concentrations of water extracts (figure 1).

Conclusions Various extracts of T. turcica, expressed the anticancerous activity in the HepG2 cells and Ethyl acetate extracts had the highest cytotoxic and genotoxic activity.