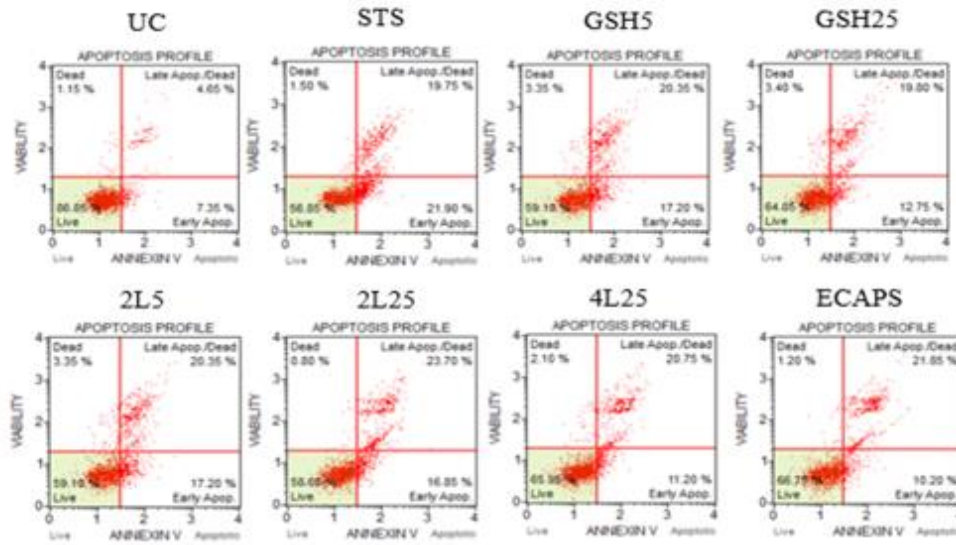
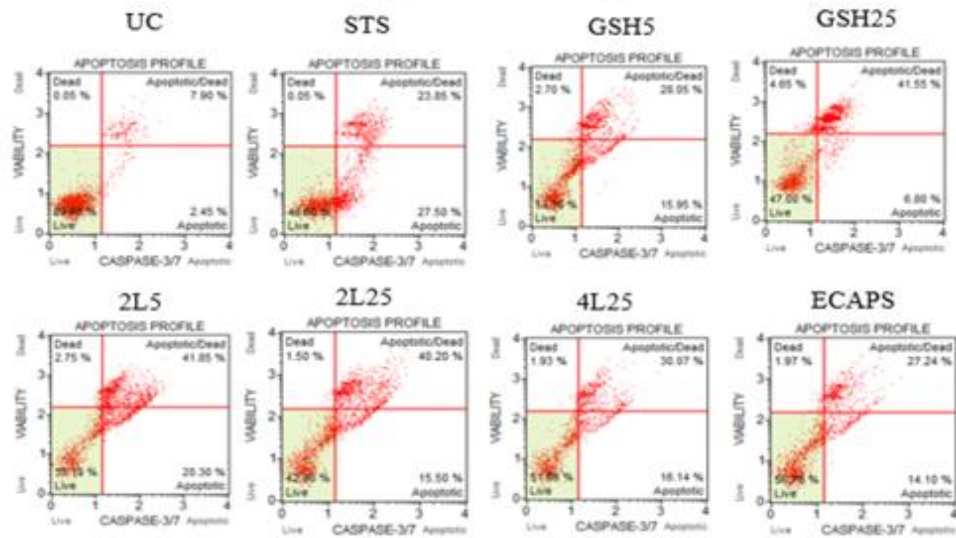


**Figure S1.** MAPK and PI3K pathway activation in Hep G2 cancer cells at treated with experimental capsules. The cells were analyzed using a Muse® Cell Analyzer. The Muse® PI3K/MAPK Activation Dual Detection Kit was used to evaluate simultaneously the activation of both phosphorylated AKT and ERK1/2 in the cell line. UC, untreated control. GSH5, 5 mg/ml glutathione. GSH25, 25 mg/ml glutathione. 2L5, 5 mg/mL glutathione-enriched FUR/CHIT capsules with 2 layers. 2L25, 25 mg/mL glutathione-enriched (FUR/CHIT) capsules with 2 layers. 4L25, 25 mg/mL glutathione-enriched (FUR/CHIT)<sub>2</sub> capsules with 4 layers. ECAPS, empty (CHIT/FUR)<sub>2</sub> capsules. The results are expressed as mean ± SD ( $n = 3$ ). Statistical significance was based on ANOVA and Duncan's a posteriori test. \*  $p \leq 0.05$  compared to untreated control.

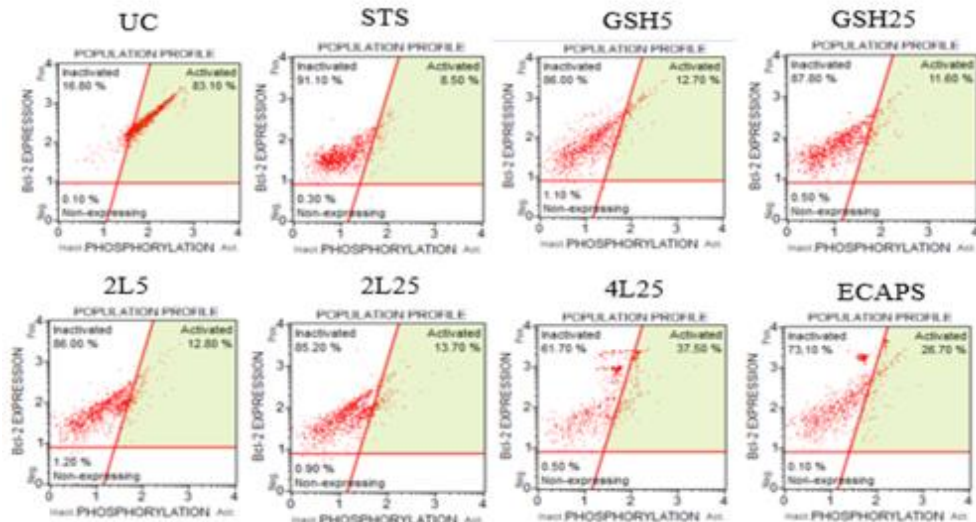
## Apoptosis Activity



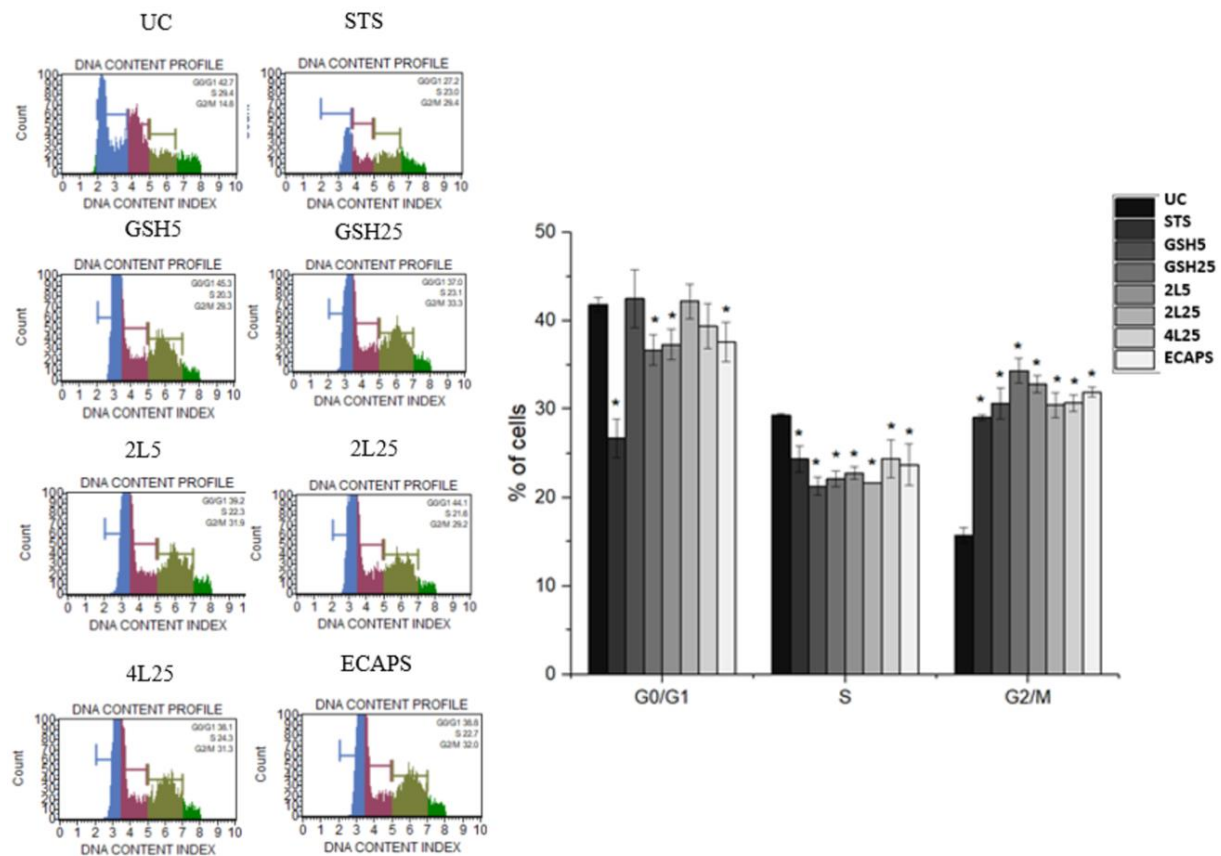
## Caspase- 3/7 Activity



## BCL-2 Activation



**Figure S2.** Cell apoptosis results of Hep G2 cancer cells at treated with experimental capsules. The apoptosis profiling and apoptotic cell counts were obtained using flow cytometry (Muse® Cell Analyzer) and Muse® Annexin V and Dead Cell Assay Kit and Muse® Caspase- 3/7 Kit. Comparison of BCL-2 protein inactivation in cancer cells was obtained using Muse® BCL-2 Activation Dual Detection Assay Kit. UC, untreated control. GSH5, 5 mg/mL glutathione. GSH25, 25 mg/mL glutathione. 2L5, 5 mg/mL glutathione-enriched FUR/CHIT capsules with 2 layers. 2L25, 25 mg/mL glutathione-enriched (FUR/CHIT) capsules with 2 layers. 4L25, 25 mg/mL glutathione-enriched (FUR/CHIT)<sub>2</sub> capsules with 4 layers. ECAPS, empty (CHIT/FUR)<sub>2</sub> capsules.



**Figure S3.** The change of cell cycle phases of cancer cells of the Hep G2 line at treated with experimental capsules. The cell cycle was analyzed using flow cytometry (Muse® Cell Analyzer) and Muse® Cell Cycle Kit. UC, untreated control. GSH5, 5 mg/mL glutathione. GSH25, 25 mg/mL glutathione. 2L5, 5 mg/mL glutathione-enriched FUR/CHIT capsules with 2 layers. 2L25, 25 mg/mL glutathione-enriched (FUR/CHIT) capsules with 2 layers. 4L25, 25 mg/mL glutathione-enriched (FUR/CHIT)<sub>2</sub> capsules with 4 layers. ECAPS, empty (CHIT/FUR)<sub>2</sub> capsules. The results are expressed as mean  $\pm$  SD ( $n = 3$ ). Statistical significance was based on ANOVA and Duncan's a posteriori test. \*  $p \leq 0.05$  compared to untreated control.