

# INHIBITION OF BREAST, LIVER AND PROSTATE CANCER CELL PROLIFERATION BY COWPEA DERIVED PEPTIDE FRACTIONS: AN *IN VITRO* INVESTIGATION

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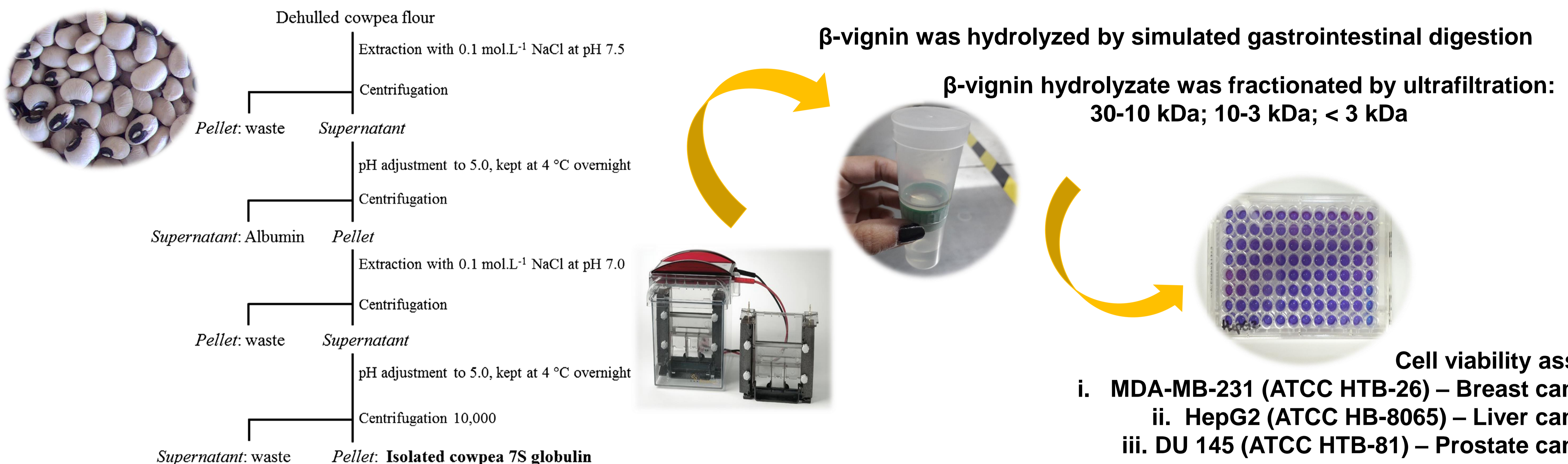
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## 1 Introduction

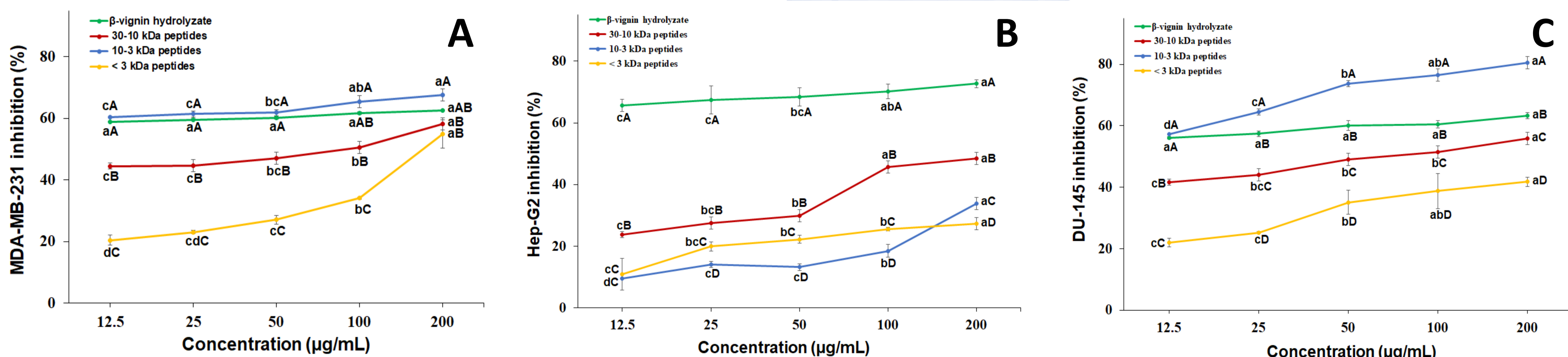
Recently, some studies have indicated that legume-derived protein hydrolysates can generate biologically active peptides<sup>[1]</sup>, especially with antitumoral effect.<sup>[2]</sup> Soy protein-derived peptides have received remarkable interest due to its probable antitumor activity.<sup>[3,4]</sup> Hence, the present study evaluated the impact of cowpea bean  $\beta$ -vignin protein hydrolysate (BVPH) and its fractions on breast, liver and prostate cancer cell proliferation, *in vitro*.

## 2 Material and Methods



## $\beta$ -vignin isolation and characterization from cowpea bean<sup>[5]</sup>

## 3 Results



**Figure 1** – Antiproliferative effect of the BVPH of  $\beta$ -vignin and its peptide fractions (30-10 kDa, 10-3 kDa and <3 kDa) against cancer cells MDA-MB-231 (A), Hep-G2 (B) and DU-145 (C). Mean  $\pm$  standard deviation ( $n = 3$ ) with lowercase letters indicate difference between the concentrations of the same fraction and uppercase letters indicate difference between fractions in the same concentration ( $p$  value  $\leq 0.05$  by Tukey's multiple interval test).

BVPH inhibited cancer cell lines up to 72.7%, although there was no statistical difference in the inhibition of MDA-MB-231 and DU-145 cells among different concentrations. The 10-3 kDa peptide fraction presented better antiproliferative effect against breast as well as prostate cancer cells. Also, a dose-dependent effect was observed.

The results observed in the present study suggest that peptides derived from  $\beta$ -vignin protein from cowpea bean have a cytotoxic effect on breast, liver and prostate cancer cells. In this sense, complementary studies are being carried out in order to identify the peptides responsible for this effect.

## 5 Conclusion

## References

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