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Amaranth 11S globulin protein modification to enhance the antihypertensive activity

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The nutraceutical properties of a protein can be improved by insertion of bioactive peptides into its structure. The bioactive peptide are fragments formed by 2-20 amino acids which play a role in human health by the benefits in the digestive, cardiovascular, immune and other systems. Then, through protein engineering is possible inserting bioactive peptides in order to create or improve a protein which can be used as therapeutic agent protein. In this context, in our group it was created a protein with antihypertensive effect improved by inserting four copies of the peptide Val-Tyr (VY) into variable region IV of acidic subunit of 11S major globulin from amaranth, named as AACM.4. The production of this protein was carried out using *Escherichia coli* BL21-CodonPlus (DE3)-RIL, also in the same system was produced the acidic subunit of amaranth 11S major globulin without modifications (AAC). The inhibition of Angiotensin Converting Enzyme measured by IC₅₀ value revealed that the modified protein, AACM.4 is eight times more effective (0.061 mg/mL) than AAC protein (0.48 mg/mL). This results showed that is possible modifying and improve the nutraceutical effect of a protein in order to create a therapeutic agent which can be used as additive in functional foods.

Biography

Silvia Luna-Suarez has completed her PhD on Plants Biotechnology from (CINVESTAV-Irapuato). She is professor at the Centro de Investigación en Biotecnología del IPN. Her scientific interest is focused to study modified proteins in order to create therapeutic agents or proteins with technological purposes, also is focused in the production of proteins of biotechnological and industrial interest.

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