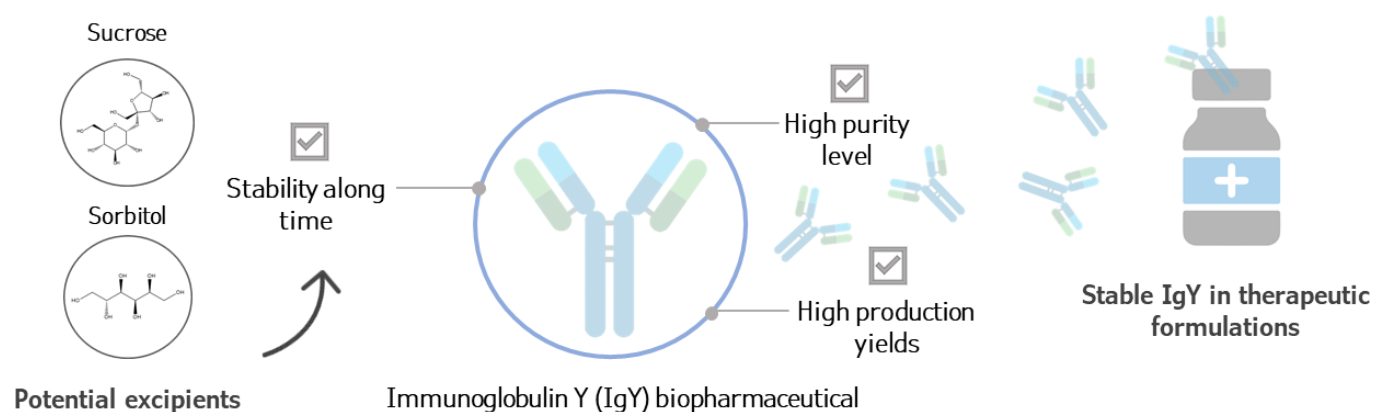


BIOCOMPATIBLE EXCIPIENTS TO IMPROVE THE STABILITY OF AVIAN IMMUNOGLOBULIN Y (IGY) ANTIBODIES: PAVING THE WAY FOR THEIR USE AS BIOPHARMACEUTICALS

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Avian immunoglobulin Y (IgY), present in the chicken egg yolk, has potential to be used as a biopharmaceutical. Compared to its mammalian analogous immunoglobulin G (IgG), IgY presents advantages, namely high binding avidity and immunogenicity, and their recovery by a non-invasive method at high yields. The amount of IgY obtained from an egg is equal to that from 200-300 mL of mammals blood, being possible for a chicken produce 17-35 g of total IgY. By being a polyclonal antibody, IgY recognize more epitopes on an antigen. Therefore, IgY has various applications, such as the treatment of several diseases. However, IgY derives from a complex media, making difficult their recovery at high purity and yields. Also, IgY is highly labile to changes in temperature, ionic strength, and pH, being difficult to preserve along time. These two drawbacks restrict their use as biopharmaceuticals. In this work, IgY antibodies were isolated from the yolk of commercial chicken eggs and purified by two precipitation steps. Their stability was assessed by Circular Dichroism Spectroscopy (CD) under 1-3 weeks of storage at -20 °C, with and without sucrose and sorbitol, to evaluate their use as stabilizers agents. The purity level, concentration and percentage of formed aggregates were determined by Size Exclusion- High Performance Liquid Chromatography (SEC-HPLC), and the protein profile revealed by dodecyl sulphate polyacrylamide gel electrophoresis (SDS-PAGE). Novel bio-based compounds have been identified as promising stabilizers to improve the stability of IgY antibodies, paving the way for their use as excipients in IgY therapeutic formulations.

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