ABSTRACT

A process for making hemoglobin based oxygen carrier (HBOC) containing pharmaceutical composition suitable for oral delivery and the composition formed thereby are described. There are three exemplary composition configurations which include (1) hemoglobin-loaded nanoparticles solution, (2) enteric-coated hemoglobin capsules and (3) enteric-coated hemoglobin tablets. To facilitate the bioavailability and bio-compatibility of hemoglobin, intestinal ~~abosprtion~~ absorption enhancers are added in each of the HBOC formulations. Protective layers ensure delivery of an intact hemoglobin structure in intestinal tract without degradation in the stomach. The HBOC formulations may be used for preventive or immediate treatment of high altitude syndrome (HAS) or for treatment of hypoxic conditions including blood loss, anemia, hypoxic cancerous tissue, and other oxygen-deprivation disorders. In addition to delivering oxygen, the heme group of hemoglobin from HBOC formulations can provide heme iron to the human body to aid in the production of more red blood cells.

(Fig. 1 to be used for publication)