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Isaacs

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- (54) **GLP-2 FORMULATIONS**
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- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 628 days.

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- (30) **Foreign Application Priority Data**
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- (51) **Int. Cl.**
A61K 38/00 (2006.01)
A61K 38/26 (2006.01)
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- (52) **U.S. Cl.** **514/12**; 530/308; 530/399; 530/324; 435/4; 435/287.1
- (58) **Field of Classification Search** 514/12; 530/308, 399, 324; 435/4, 287.1
See application file for complete search history.

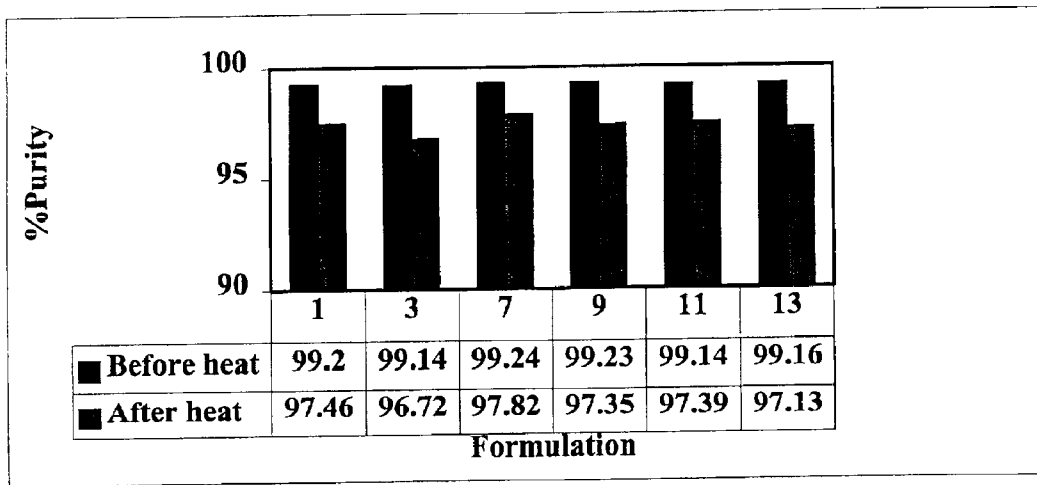
(57) **ABSTRACT**

The invention is directed to formulations of GLP-2 peptides and analogs thereof exhibiting superior stability following storage and/or exposure to elevated temperatures. The GLP-2 compositions comprise a GLP-2 peptide or an analog thereof, a phosphate buffer, L-histidine, and mannitol.

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75 Claims, 6 Drawing Sheets

Figure 1. Amino acids screening in buffers using heat stress.



Formulation

- 1. 10 mM Phosphate, 10 mM Glu
- 3. 10 mM Phosphate, 10 mM Citrate
- 7. 10 mM Phosphate, 10 mM Ser
- 9. 10 mM Phosphate, 10 mM Pro
- 11. 10 mM Phosphate, 10 mM His
- 13. 10 mM Phosphate, 10 mM Gly

Figure 2. Screening of buffers using heat stress.

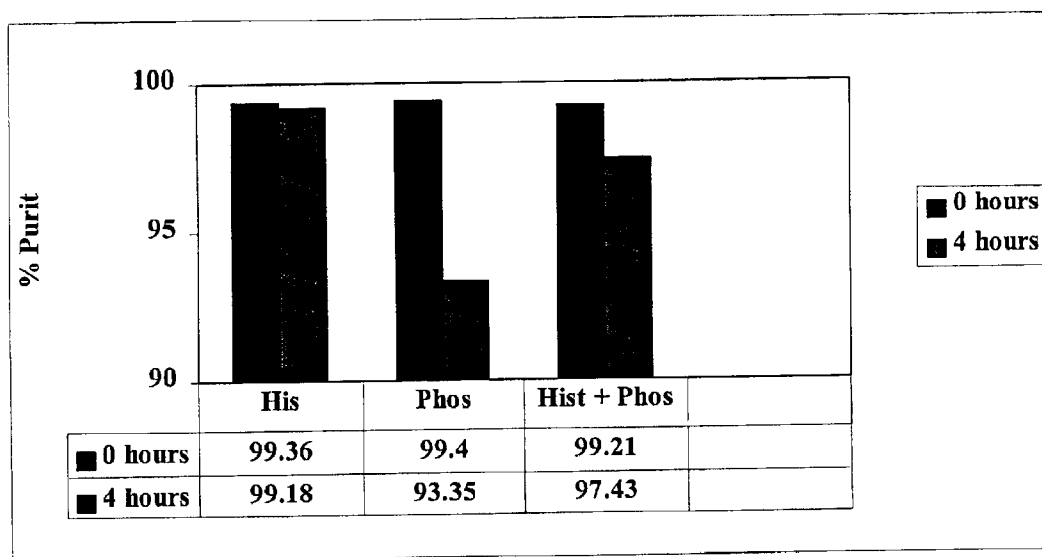
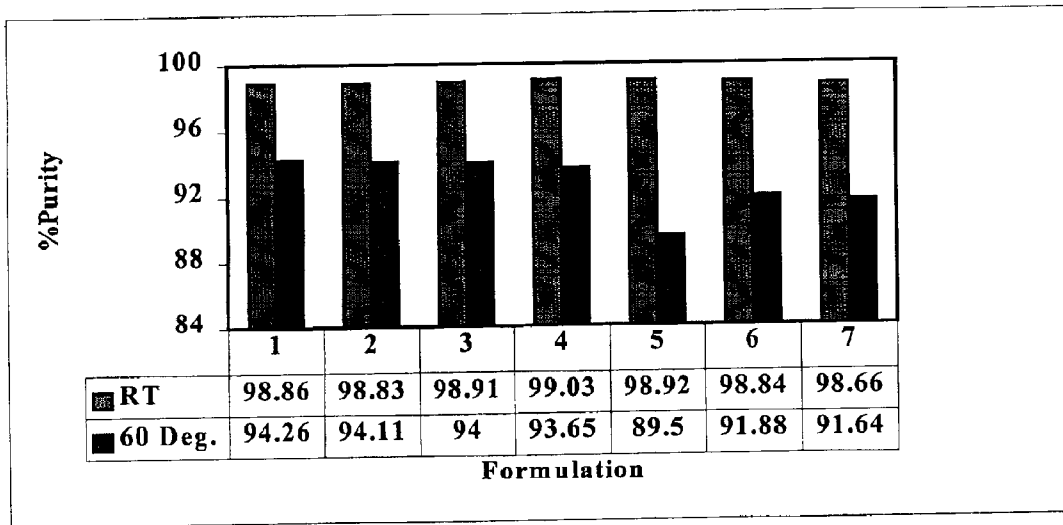


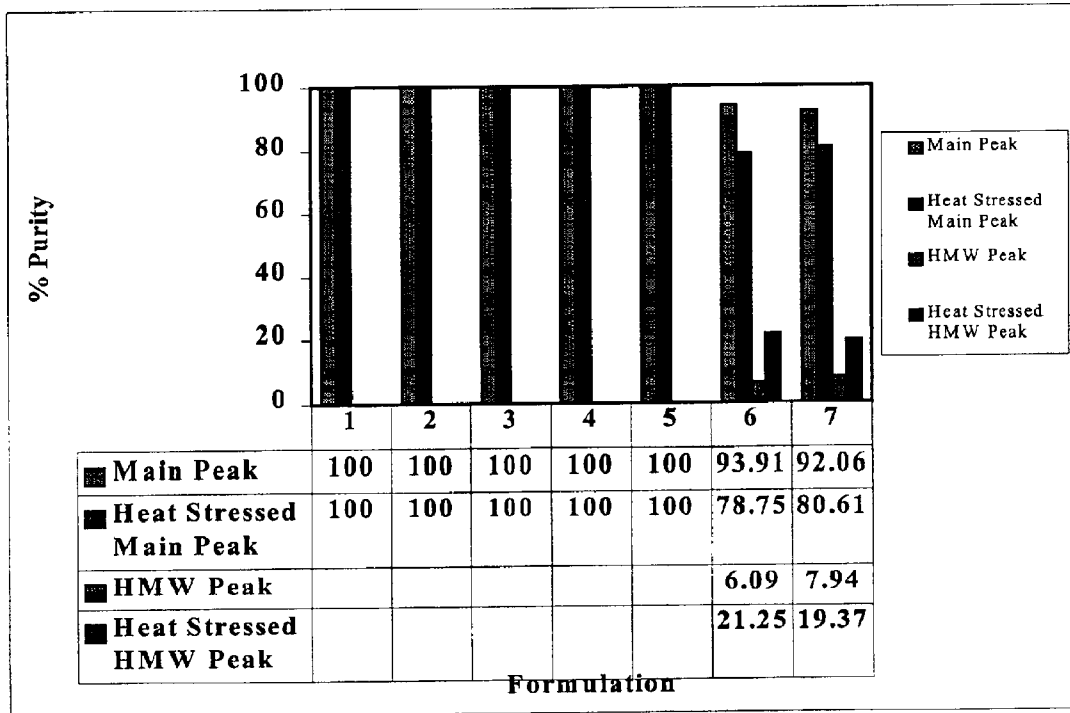
Figure 3. Screening of Bulking agents analyzed by RP-HPLC.



Formulation

1. 25 mM Histidine, 35 mM phosphate, 3% Mannitol
2. 50 mM Histidine, 35 mM phosphate, 3% Mannitol
3. 75 mM Histidine, 35 mM phosphate, 3% Mannitol
4. 25 mM Histidine, 25 mM phosphate, 3% sucrose
5. 25 mM Histidine, 25 mM phosphate, 3% trehalose
6. 25 mM Histidine, 25 mM phosphate, 3% maltose
7. 25 mM Histidine, 25 mM phosphate, 3% lactose

Figure 4. Bulking agents analyzed by SE-HPLC.



Formulation

1. 25 mM Histidine, 35 mM phosphate, 3% Mannitol
2. 50 mM Histidine, 35 mM phosphate, 3% Mannitol
3. 75 mM Histidine, 35 mM phosphate, 3% Mannitol
4. 25 mM Histidine, 25 mM phosphate, 3% sucrose
5. 25 mM Histidine, 25 mM phosphate, 3% trehalose
6. 25 mM Histidine, 25 mM phosphate, 3% maltose
7. 25 mM Histidine, 25 mM phosphate, 3% lactose

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