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Muhammad et al.

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[54] **SUSTAINED RELEASE FORMULATIONS**

4,954,350 9/1990 Jones et al. 424/493

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[57] **ABSTRACT**

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Semi-enteric controlled release formulations are comprised of a biological active agent such as an antibiotic that is blended with a water-soluble bulking agent, the mix then coated onto an inert core. The coated active core is further coated with a mixture comprised of an acrylic copolymer, bulking agent and pH dependent food acid. These different coating components possess different solubility characteristics which result in a gradual release of the active in both the stomach and small intestine that provides an increased bioavailability of the active drug.

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[51] Int. Cl.⁵ **A61K 47/00**

[52] U.S. Cl. **424/431; 424/441; 424/472; 424/474**

[58] Field of Search **424/439, 441, 472, 473**

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,993,072 11/1976 Zaffaroni 128/260
4,459,279 7/1984 Stricher et al. 424/19

8 Claims, No Drawings