Urea Encyclopedia Article

Urea

The following sections of this BookRags Literature Study Guide is offprint from Gale's For Students Series: Presenting Analysis, Context, and Criticism on Commonly Studied Works: Introduction, Author Biography, Plot Summary, Characters, Themes, Style, Historical Context, Critical Overview, Criticism and Critical Essays, Media Adaptations, Topics for Further Study, Compare & Contrast, What Do I Read Next?, For Further Study, and Sources.

(c)1998-2002; (c)2002 by Gale. Gale is an imprint of The Gale Group, Inc., a division of Thomson Learning, Inc. Gale and Design and Thomson Learning are trademarks used herein under license.

The following sections, if they exist, are offprint from Beacham's Encyclopedia of Popular Fiction: "Social Concerns", "Thematic Overview", "Techniques", "Literary Precedents", "Key Questions", "Related Titles", "Adaptations", "Related Web Sites". (c)1994-2005, by Walton Beacham.

The following sections, if they exist, are offprint from Beacham's Guide to Literature for Young Adults: "About the Author", "Overview", "Setting", "Literary Qualities", "Social Sensitivity", "Topics for Discussion", "Ideas for Reports and Papers". (c)1994-2005, by Walton Beacham.

All other sections in this Literature Study Guide are owned and copyrighted by BookRags, Inc.

Contents

Urea Encyclopedia Article.....1

Contents.....2

Urea.....3

Urea

Urea is a nitrogenous compound excreted in the urine by humans and most other mammals. The chemical structure of urea is H_2N- C($_o$)-NH_2. Urea is a colorless solid with a melting point of 270.8°F (132.7°C), possessing good **solubility** in both **water** and **ethanol**. A product of protein **metabolism**, urea is formed by the liver primarily from the **ammonia** that results when excess **amino acids** are deaminated (or broken down). In this process--basically, splitting off the amino acid's amine group--the resting ammonia is either used to make other nitrogen-containing compounds or transported to the liver, where it is converted to urea and then excreted by way of the urine.

Urea was first discovered in the urine in 1773 by the French chemist Jean Rouelle. Over 50 years later, in 1828, it was synthesized by the German chemist, Friedrich Wöhler--a feat more remarkable than it sounds. In the early 1800s, it was widely believed that an organic compound like urea--a product formed by the human body itself--could not be manufactured in the laboratory as though it were a common chemical. When Wöhler accidentally found he had synthesized crystals of urea while evaporating a **solution** of ammonium cyanate, he was surprised that it was possible. In his excitement, he dashed off a letter to his friend, the famous Swedish chemist Jöns Berzelius, and declared, "I can make urea without needing a kidney, whether of man or dog!" Wohler's historic preparation of "artificial" urea demonstrated to the scientific world that an organic compound could be synthesized, not only by a living organism, but by the working chemist. For many, then, Wöhler is considered the true father of organic **chemistry**.