

Production of Ethanol from Renewable Biomass

Gloria Simmons*

Editorial Office, UK

* **Corresponding author:** Gloria Simmons, Editorial Office, UK, E-Mail: gloriasim@gmail.com

Received: March 03, 2021; **Accepted:** March 17, 2021; **Published:** March 24, 2021

Ethanol is made from biomass

Since it is produced from biomass, ethanol is a green biofuel. Ethanol is a colourless, clear alcohol extracted from a range of biomass feedstocks (the raw materials used to make a product). Corn, sorghum, barley, sugar cane, and sugar beets are examples of grain and crop feedstocks with high starch and sugar content. Agricultural and forestry residues such as corn cobs and stocks, rice straw, sawdust, and wood chips can also be used to make ethanol [1]. These feedstocks can be used to make ethanol in a variety of ways.

The most popular method for processing fuel ethanol is fermentation

The starch and sugars in corn, sugar cane, and sugar beets are fermented by yeast in the most popular ethanol production processes today. Because of its abundance and low cost, corn is the most popular feedstock for fuel ethanol in the United States. Corn kernels' starch is fermented into sugar, which is fermented into alcohol [2-4].

In other parts of the world, sugar cane and sugar beets are the most popular feedstocks used to make fuel ethanol. Sugar crops are the simplest to turn into alcohol since alcohol is produced by fermenting sugar. Brazil, after the United States, is the world's second-largest fuel ethanol manufacturer [5]. It produces the majority of its fuel ethanol from sugar cane. In Brazil, most cars can run on pure ethanol or a mixture of gasoline and ethanol.

Cellulosic ethanol has a lot of potential as a fuel ethanol source

Breaking down cellulose in plant fibers may also create ethanol. This cellulosic ethanol is classified as an advanced biofuel because it is generated through a more complicated process than fermentation. Although there are numerous potential sources of cellulosic feedstock, commercial cellulosic fuel ethanol production is limited [6].

Trees, grasses, and agricultural residues could all be used to make cellulosic ethanol. Trees and grasses need less energy, fertilizer, and water to grow than grains, and they can be grown on land that isn't ideal for food production. Scientists have created trees that grow to full size in just ten years [7]. Without annual replanting, several grasses will produce two harvests per year for several years. Corn cobs and corn plant stocks are being used to make cellulosic fuel ethanol by a corporation in the United States.

History of ethanol

Ethanol was a common lighting fuel in the 1850s. During the Civil War, ethanol was subjected to a liquor levy in order to collect funds for the war effort. The tax drove up the price of ethanol to the point that it couldn't compete with other fuels like kerosene. This tax caused a sharp drop in ethanol production, which did not begin to recover until the tax was repealed in 1906.

Citation: G Simmons. Production of Ethanol from Renewable Biomass. *Biotechnol Ind J.* 2021;17(3):224.

©2021 Trade Science Inc.

The Model T ran on ethanol

Henry Ford engineered his Model T, an early car, to run on a combination of gasoline and alcohol in 1908. This mixture was dubbed "future fire" by Ford. When Prohibition began in 1919, ethanol was outlawed because it was classified as an alcoholic beverage. Only when combined with petroleum could it be sold. Since Prohibition ended in 1933, ethanol was once again used as a fuel [8].

Most motor gasoline now contains fuel ethanol

During World War II, when oil and other resources were scarce, ethanol use increased temporarily. Interest in ethanol as a transportation fuel resurfaced in the 1970s, as oil embargoes, increasing oil prices, and a growing reliance on imported oil sparked a renewed interest in alternative fuels. Since then, tax incentives and environmental legislation requiring cleaner-burning fuels have promoted the use and production of ethanol.

The Renewable Fuel Standard, which includes ethanol, was passed by Congress in 2005. It established minimum standards for the use of renewable fuels, including ethanol. Renewable fuel use goals were expected to grow gradually to 36 billion gallons by 2022 under the RFS in 2007. In the United States, 14.5 billion gallons of fuel ethanol were consumed in 2019. The majority of motor gasoline sold in the United States now contains around 10% fuel ethanol by volume.

References

1. Huang H, Yang Y. Preparation of silver nanoparticles in inorganic clay suspensions. *Compos Sci Technol*. 2008;68:2948-53.
2. Li L, Hu J, Yang W, et al. Band gap variation of size-and shape-controlled colloidal CdSe quantum rods. *Nano Lett*. 2001; 1:349-51.
3. Perala SRK, Kumar S. On the mechanism of metal nanoparticle synthesis in the Brust-Schiffrin method. *Langmuir*. 2013;6;29(31):9863-73.
4. Polte J. Fundamental growth principles of colloidal metal nanoparticles-a new perspective. *Cryst Eng Comm*. 2015;17:6809-30.
5. Schmid G. Large clusters and colloids. Metals in the embryonic state. *Chem Rev*. 1992;92:1709-1027.
6. Sharma VK, Yngard RA, Lin Y. Silver nanoparticles: Green synthesis and their antimicrobial activities. *Adv Colloid Interface*. 2009;145:83-96.
7. Raza MK, Kanwal Z, Rauf A, et al. Size-and shape-dependent antibacterial studies of silver nanoparticles synthesized by wet chemical routes. *Nanomaterials (Basel)*. 2016;6(4):74.
8. Socol Y, Abramson O, Gedanken A, et al. Suspensive electrode formation in pulsed sonoelectrochemical synthesis of silver nanoparticles. *Langmuir*. 2002;18:4736-40.