

Parameter Studies on the Electroporation Efficiency of Sugar Beets

M. Sack, Chr. Schultheiss, and H. Bluhm

*Forschungszentrum Karlsruhe GmbH,
Institute for Pulsed Power and Microwave Technology,
P.O. Box 3640, D-76021 Karlsruhe, Germany*

The electroporation of sugar beets is a promising new alternative to their thermal denaturation. Together with our industrial partners, during the last beet campaign a semi-industrial scale electroporation device has been operated on site at a sugar factory for experimental purpose. Additionally, accompanying laboratory experiments have been carried out in order to find out a set of parameters for an energetically optimised operation of the device. This paper deals with the results of the laboratory experiments. For these experiments cubical samples have been electroporated in a homogeneous electrical field with pulses in the microsecond range of aperiodically damped shape. The amplitude, pulse duration, number of pulses, and the temperature have been varied. The electroporation result has been measured by means of squeezing the samples and evaluating the yield of juice. Apart from a strong thermal dependence of the electroporation efficiency a dependence on the beets' quality has been observed.

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Typed Name: Martin Sack

Affiliation/Institution/Company:

Forschungszentrum Karlsruhe GmbH,
Institute for Pulsed Power and Microwave
Technology

Mailing Address:

P.O. Box 3640,
D-76021 Karlsruhe, Germany

City: Karlsruhe

State/Province: Baden-Württemberg

Zip Code: 76021

Country: Germany

Phone: +49 7247 82 4667

Fax: +49 7247 82 2823

E-mail: martin.sack@ihm.fzk.de

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