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Titel des Beitrags: Development of a sensitive ELISA for the detection of casein-containing fining agents in red and white wines.

Abstract:
Fining of wine with proteinogenic fining agents such as casein from cow's milk is a traditional and commonly used technique all over the world. Casein and other proteins from cow's milk are well-known food allergens, which pose a risk for allergic consumers. Temporary regulations exempting the labeling of milk and products thereof in wine expired. Since July 1, 2012, these fining agents have to be declared on the wine label under Regulation (EU) No. 579/2012 in conjunction to article 120g of Regulation (EU) No. 1234/2007 if exceeding the threshold of 0.25 mg/L allergenic protein. The aim of the presented study was to develop sensitive ELISA methods for the detection of casein in white and red wines and to investigate the risk of allergenic residues in fined wines. In this context it was shown that the used substance for calibration is highly relevant. Casein wine fining agents of different commercial producers were investigated by LDS-PAGE and immunoblot. In addition to casein, they contain other milk proteins, which are potentially allergic and therefore have to be incorporated in the development of antibodies for an ELISA method to be set up. An indirect ELISA for the investigation of white wine was developed. The LOD is 0.1 mg/L. For red wine the LOD is 0.2 mg/L in an indirect sandwich ELISA setup. The
LOD of the indirect sandwich ELISA for white wine depends on the calibration standard. It is 0.1 mg/L for the fining agent casein and 0.01 mg/L for casein from a chemical trader. It is also shown that the use of different technological procedures during winemaking leads to no detectable amounts of casein in various wine samples.