

# **EFFECT OF ACIDIC HYDROLYSIS ON SULFAMIDES DETECTION IN HONEY WITH NEW GENERIC ANTIBODY-BASED DIPSTICK ASSAY**

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Sulfamides (or sulfonamides) constitute a large family of synthetic antimicrobial drugs largely used to prevent and treat animal and bee diseases. These drugs may cause a variety of human harmful reactions, including strong allergy reaction, urinary tract and haemopoietic disorders. Due to their extensive use, there is a need to verify the potential presence of their undesired residue in different food products including honey.

Unfortunately, there is a lack of generic rapid tests able to detect all sulfamides compounds at the same time. Moreover, due to chemical binding between honey sugars and sulfamides, most of existing sulfamides screening tests require a long procedure of honey hydrolysis step before analysis.

We have therefore developed a new rapid test based on dipstick format. We have also checked the necessity to apply an acidic hydrolysis step before the sample analysis. This indirect competitive Lateral Flow (LF) assay uses specific generic monoclonal antibodies and the result of the test is directly visualized on specific capture lines by the use of colloidal gold-conjugates. Our results show that the hydrolysis step is mandatory to detect sulfamides in honey with our system. We have thus developed a new short and easy “on field” hydrolysis protocol. Our final test detects more than 10 sulfamides in honey at low concentration level (<25 ppb for most of sulfamides). It only requires a very easy sample hydrolysis procedure. The adapted hydrolysis protocol takes only 5 minutes of incubation in boiling water and the overall dipstick analysis takes 20 minutes. Accurate results can be obtained either by visual observation of the test line intensity, or automatically using an optical reader.

In conclusion, we have developed a rapid, easy and generic screening test able to detect, in one single analysis, more than 10 sulfamides in honey.

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