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FOCUSED-MICROWAVE-ASSISTED SAMPLE PREPARATIO (M 8)

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Focused-microwave-assisted sample preparation is a suitable strategy when dealing wit high masses of organic samples. However, the final acid concentration of the digestat can difficult routine analytical measurements using spectroscopic techniques. Acid could be evaporated, but this step could be slow even when using microwave-assiste heating and requires a scrubber system for acid vapor collection and neutralization. W are investigating two procedures to decrease the acid concentration of digestates. Th first one is based on acid vapor phase digestion of samples contained in PTFE device inserted into the microwave flask. The acid solution is heated by absorption c microwave radiation, then the acid vapor partially condenses in the upper part of th reaction flask and it is partially collected in each sample container. Calcium, Fe, Mg, Mı and Zn were quantitatively recovered in samples of animal and vegetable tissues. Bette recoveries were attained when adding a small volume of sodium hypochlorite to th sample. This effect is probably related to the generation of chlorine in the sampl container after collecting condensed acid. The second procedure developed is based o the gradual addition of liquid samples to a previously heated acid digestion mixture. Thi procedure was successfully applied for digestion of milk, fruit juices, and red wine. Th main advantage is the possibility of digesting up to four-fold more sample using up t ten-fold lower amounts of concentrated acids. Results obtained using both digestio procedures and measurements by ICP-OES with axial view will be presented.

1. Patent pending, INPI Brazil.