OLIVE OIL ANALYSIS BY FLOW INJECTION

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Flow Injection **(FI)** automated methods for the quality assessment of olive oil will be presented. The methods are based on laboratory made analysers, providing automated data acquisition and control. Reagents are continuously pumped by a peristaltic pump through PTFE micro-tubes of 0.8 mm inner diameter (coils). Micro-quantities of olive oil are automatically injected in the flow using a chromatography injection valve. Samples are mixed with the reagents and incubated while flowing to the spectrophotometer. For methods based on slow reactions, a **Parallel Flow Injection (PA-FI)** multichanell analyser based on a stream selection valve and ten incubation coils, was developed. While stored samples are incubated, new samples are injected and mixed with the reagents. Then, incubated samples are aspirated in the spectrophotometer by flow reversal. After measurement, samples are driven to waste. The PA-FI analyser allows automation of methods that require long incubation times without loss of sampling rate, overcoming the 'one sample at a time' disadvantage of FI. The developed automated methods provide determination of the following parameters:

- Acidity
- Peroxide value
- Iodine value
- Thiobarbituric acid reactive substances and
- Anisidine value

Advantages of the developed flow injection methods are:

- **High analysis rates:** 20-100 samples per hour
- **Full automation:** Sampling, weighting, sample pretreatment, analysis timing, data acquisition and calculations proceed at the press of a

button. Lack of human intervention results in **increased precision and accuracy**

- **Low cost:** 0.2-7 ml of organic solvents are consumed per analysis. The low solvent consumption and the replacement of chlorinated solvents renders the developed methods **environmental friendly**

- **Low sample consumption:** 0.0012-0.2 ml per analysis

- **Good agreement with time consuming official methods**

- **Protection of reagents from light and atmospheric oxygen**
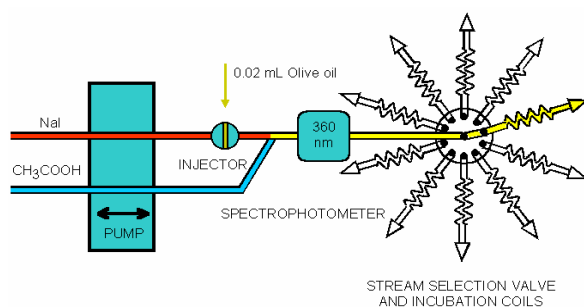
Parallel Flow Injection multichanell analyzer for Olive Oil Peroxide Value determination.