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## **Studies of iso-alpha-acids: analysis, purification, and stability.**

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## STELLINGEN

1. Stability of iso- $\alpha$ -acids is improved by complexation with cyclodextrin when the complex is in a dry state (this thesis).
2. Tautomerism of iso- $\alpha$ -acids (Hughes *et al.*, 2006) makes it difficult to know what structural features are important for the taste (this thesis).
3. Selectivity of cyclodextrin complexation is not only due to inclusion, but can also be due to interaction with the outside of the cyclodextrin molecule (this thesis).
4. The fractionation of beer samples by liquid-liquid partitioning using 2-butanol significantly improves the analysis of aromatic compounds in beer by NMR spectrometry (this thesis).
5. For a public domain metabolomic database, similar to the databases for protein and gene sequences, chromatographic methods are a weak basis, as chromatography columns are continuously subject of improvements.
6. For the qualitative and quantitative analysis of botanicals, NMR spectrometry is more cost effective than HPLC.
7. There is a big challenge for phytochemists in the coming years in elucidating the structures of a large number of unidentified compounds detected in metabolomic studies of plants.
8. As science is dependent on the accumulation of information, it requires a good communication network.
9. A scientist needs to be a good entrepreneur to sell new ideas and obtain funds for research.
10. A weak country is a country that does not respect its teachers and scientists.
11. A rich diversity is a good basis for a lively society as it may result in development of novel ideas.
12. The safety and pleasure to ride a bicycle is one of the attractions for foreign students in Netherlands.

Leiden, 14 August 2006

Alfi Khatib