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| **DOCTORAL CANDIDATE:** | **Ancuța - Cristina Raclariu** |
| **DEGREE:** | Philosophiae Doctor |
| **FACULTY:** | Faculty of Mathematics and Natural Sciences |
| **DEPARTMENT:** | Natural History Museum |
| **AREA OF EXPERTISE:** | Biology, systematic botany |
| **SUPERVISORS:** | Hugo de Boer, Anne Krag Brysting, Mihael Cristin Ichim |
| **DATE OF DISPUTATION:** | 17th of November 2017 |
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| **DISSERTATION TITLE:** | *Molecular authentication of complex herbal products for quality and safety* |
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| Kan vi stole på at urtemedisinen inneholder det den skal? Iflg. Raclariu som har sjekket over 200 urtemedisiner på det europeiske markedet er svaret nei. Hennes analyse viser betydelige avvik mellom etikett på pakken og virkeligheten. Hun fant at optimal metode for å avdekke dette var en kombinasjon av DNA analyse og tradisjonelle fytokjemibaserte metoder.  |
| With a new analytical approach Raclariu found considerable discrepancies between ingredients listed on the label and the ones detected within the investigated herbal products. None of the products contained exactly what was written on the label. She shows that different analytical methods have varying resolution along the value chain of marketed herbal products. Specifically, Raclariu used DNA-based analysis to check the content of several marketed products made from one or more medicinal herbs, with the aim to detect which plant species are present in each product. Furthermore, Raclariu evaluated the ability of DNA-based analysis to detect substitution and adulteration of herbal products compared to standard phytochemistry-based analytical methods, showing that a combination of methods is essential for comprehensive quality control.Herbal medicines play an important role globally in health care, and in industrialized countries they are often considered as an alternative to mono-substance medicines. Despite they long history of use, there are increasing concerns over product efficacy, safety and quality in the wake of recent cases exposing discrepancies between labeling and constituents. Current quality and authentication assessment methods rely mainly on morphology and standard analytical chemistry methods. However, herbal products are often highly processed and with numerous ingredients, and although these analytical methods are accurate for quality control of specific lead or marker compounds they cannot accurately detect species composition for the herbal product quality control. To address this issue, Raclariu aimed to develop, apply and evaluate, in real life case-scenarios, new authentication approaches involving a complex multidisciplinary approach, including DNA-based analysis and standard analytical phytochemistry-based methods. |