

Journal of Integrated

OMICS

a methodological journal

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JIOMICS

Journal of Integrated OMICS

Focus and Scope

Journal of Integrated OMICS, JIOMICS, provides a forum for the publication of original research papers, preliminary communications, technical notes and critical reviews in all branches of pure and applied "-omics", such as genomics, proteomics, lipidomics, metabolomics or metallomics. The manuscripts must address methodological development. Contributions are evaluated based on established guidelines, including the fundamental nature of the study, scientific novelty, and substantial improvement or advantage over existing technology or method. Original research papers on fundamental studies, and novel sensor and instrumentation development, are especially encouraged. It is expected that improvements will also be demonstrated within the context of (or with regard to) a specific biological question; ability to promote the analysis of molecular mechanisms is of particular interest. Novel or improved applications in areas such as clinical, medicinal and biological chemistry, environmental analysis, pharmacology and materials science and engineering are welcome.

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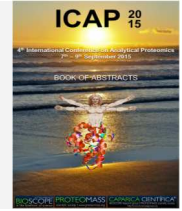
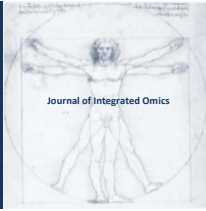
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Special Issue: Proceeding Abstracts of the 4th International Congress on Analytical Proteomics (ICAP 2015)

Comparison of 2D proteomic maps revealed properties of *Ambrosia artemisiifolia* sub-pollen particles accounting for more severe asthma symptoms than its whole pollen grains

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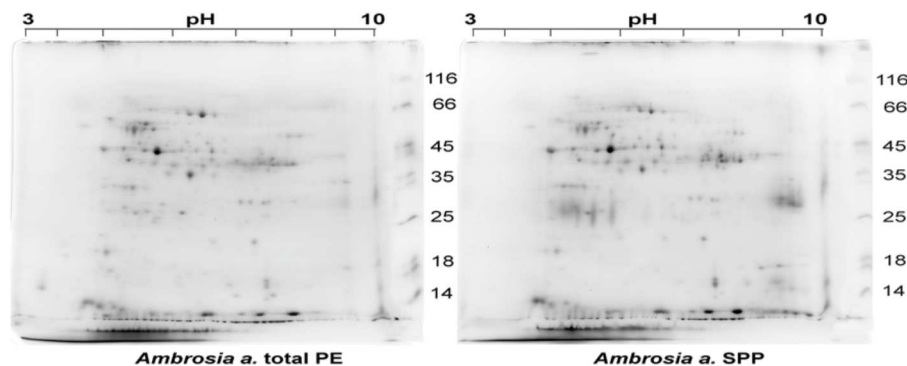
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ABSTRACT

Aims and scopes: It is known that sub-pollen particles (SPP) cause more severe symptoms of asthma than its whole pollen grain counterparts, due to its smaller size and ability to penetrate deeper into the lungs. To reveal other possible causes of such more severe asthma symptoms induced by *Ambrosia artemisiifolia* SPP, its sub-pollen particle and pollen grain proteomes were characterized and compared.

Experimental description: Protein extract of short ragweed (*Ambrosia artemisiifolia*) pollen and its SPP were prepared and subjected to denaturing 2-D electrophoresis. Pollen proteome spots were excised after colloidal coomassie blue brillinat (cCBB) staining and in gel digested for liquid chromatography coupled with high resolution LTQ Orbitrap XL hybrid mass spectrometry. Parallel to that, cCBB stained gels were analyzed and quantified with laser scanner Typhoon 7000 series and Image 2D Master Platinum 7.0 software (GE Healthcare, USA).

Results: There is statistically significant difference between the contents of major allergen Amb a 1.05 subgroup in the ragweed whole pollen grains and SPP, the latter being richer in Amb a 1.05 (2 times), in major allergen Amb a 11 (5 times), in minor allergens Amb a 4 (7 times) and Amb a 6 (4 times). The 30 kDa basic antigen group in SPP (8 times more abundant) needs further investigation.



Conclusions: Beside its smaller size and hence easier penetrability, short ragweed SPP possess significantly higher load of major *Ambrosia artemisiifolia* allergens, Amb a 1.05 and Amb a 11, minor allergens Amb a 4 and Amb a 6 which could contribute to more severe asthma symptoms caused by SPP.

Keywords: Ambrosia pollen, sub-pollen particles, short ragweed, asthma, Amb allergens.

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