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New compounds from *Withania Somnifera* with neuroprotective activities. Isolation, structure elucidation bioassays and scale-up production

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The prevalence of neurodegenerative diseases are increasing worldwide due to extensions in lifespan with more than 2.1 billion people aged 60 and more in 2030. The most representative diseases are Alzheimer's disease (AD), Parkinson's disease (PD), Amyotrophic lateral sclerosis (ALS), and Huntington's disease (HD). Available treatments are limited in number and efficacy and extensive efforts are dedicated to alternative herbal therapy. Among various promising plants, *Withania somnifera* roots and leaves extracts demonstrated large spectrum activities on neural dysfunction (common name Ashwagandha). Based on our previous encouraging results, our ongoing efforts are dedicated to identify new compounds from Ashwagandha and demonstrate their mechanism of action and their relevance in neuroprotection. Besides the known major constituents, withanolides, withanone and withaferin, now steroidal components were identified and their biological activity investigated.

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