frontiers in Psychiatry

ORIGINAL RESEARCH
published: 13 August 2018
doi: 10.3389/fpsyt.2018.00369

Reducing Effect of Saikosaponin A, an Active Ingredient of *Bupleurum falcatum*, on Intake of Highly Palatable Food in a Rat Model of Overeating

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Recent lines of experimental evidence have indicated that saikosaponin A (SSA)—a bioactive ingredient of the medicinal plant, *Bupleurum falcatum L.*—potently and effectively reduced operant self-administration of chocolate and reinstatement of chocolate-seeking behavior in rats. The present study was designed to assess whether the protective properties of SSA on addictive-like, food-related behaviors generalize to a rat model of overeating of palatable food. To this end, rats were habituated to feed on a standard rat chow for 3 h/day; every 4 days, the 3-h chow-feeding session was followed by a 1-h availability of highly palatable, calorie-rich Danish butter cookies or Oreo chocolate cookies. Even though fed, rats consumed large amounts of cookies; intake of calories from cookies (consumed in 1 h) was even larger than that of calories from chow (consumed in 3 h). SSA (0, 0.25, 0.5, and 1 mg/kg, i.p.) was administered 10 min before cookie presentation. Treatment with SSA resulted in a dose-related decrease in intake of both butter and chocolate cookies. Administration of the cannabinoid CB_1 receptor antagonist/inverse agonist, rimonabant (0, 0.3, 1, and 3 mg/kg, i.p.; tested as reference compound), produced a similar reduction in intake of butter cookies. These results (a) contribute to the set-up and validation of a rat model of overeating, characterized by the intake of large amounts of unnecessary calories and (b) provide an additional piece of evidence to the anorectic profile of SSA in rats.

Keywords: saikosaponin A, *Bupleurum falcatum L.*, rimonabant, overeating, palatable food, rats

OPEN ACCESS

Edited by:
Valentina Bassareo, Università degli studi di Cagliari, Italy

Reviewed by:
Sunila Nair, University of Washington, United States
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Specialty section:
This article was submitted to Psychosomatic Medicine, a section of the journal Frontiers in Psychiatry

Received: *19 February 2018*
Accepted: *24 July 2018*
Published: *13 August 2018*

Citation:
Maccioni P, Fara F, Gessa GL, Carai MAM, Chin Y-W, Lee JH, Kwon HC and Colombo G (2018) Reducing Effect of Saikosaponin A, an Active Ingredient of Bupleurum falcatum, on Intake of Highly Palatable Food in a Rat Model of Overeating. Front. Psychiatry 9:369. doi: 10.3389/fpsyt.2018.00369

INTRODUCTION

Saikosaponin A (SSA) is one of the major ingredients of the plant *Bupleurum falcatum L.*, the roots of which are largely used in traditional Chinese, Korean, and Japanese medicine for the treatment of various diseases, including psychiatric and neurological disorders [see (1)]. Recent lines of experimental evidence have demonstrated that treatment with SSA potently and selectively suppressed intravenous self-administration of morphine (2) and cocaine (3) and oral self-administration of alcohol (4) in rats; together, these data suggest that SSA may interfere with the brain mechanisms underlying the reinforcing and motivational properties of drugs of abuse.