CHANGES IN SECONDARY METABOLITE PROFILES OF *Lupinus bogotensis* IN RESPONSE TO PHYTOPHAGOUS INTERACTION.

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Eligible for student prize

Plants respond to insect herbivory through multiple strategies to counteract the attack-derived effects. Secondary metabolites could be subdivided into constitutive or induced, so synthesis of defense compounds is considered highly dynamic and structurally diverse, depending on damage plant level closely related to insect feed type. However, our understanding of plant-insect defense mechanisms is still limited. Metabolomics provides an opportunity to study plant secondary metabolism-mediated responses to herbivory. Using a high throughput qualitative metabolic fingerprinting method for untargeted analysis, we found that herbivory by two Lepidoptera larvae species over native Andean plant *L. bogotensis* changes alkaloid and phenolic plant composition. Directly-affected plant material by phytophagous-exerted mechanical damage showed the lowest ethanolic extraction yield, however, it globally presented greater abundance and quantity of alkaloids. On the other hand, unaffected leaf samples showed greater abundance of phenolic compounds, whereas localized attack induces alkaloids production (spartein and hydroxyisospartein). Larvae were found to be capable to structurally alter the major alkaloid composition (lupanin dehydrogenation and sparteine monooxygenation/dehydrogenation) or they were able to consume defensive compounds and eliminate them through excretory system without any transformation. On both cases, greater abundance of tetrahydroxystilbene in *L. bogotensis* after phytophagous interaction can be associated to a herbivory-induced response. Present work is the first evidence of this metabolic-mediated behavior against herbivores from a native Andean legume.