

OP14. TOXICOLOGICAL IMPACT AND ALKALOID DIVERSITY OF SOUTHERN AFRICAN *SENECIO* (ASTERACEAE)

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With 1462 recognized species of *Senecio* (Asteraceae), the chemical diversity of the genus is exhaustive, yet largely unstudied. The dominant chemical families are cacalols (sesquiterpene lactones), flavonoids (flavans, flavones, isoflavones & flavanones), and macrocyclic pyrrolizidine alkaloids. These latter alkaloids are the cause of natural product toxification, either through adulteration or contamination in multiple settings, ranging from honey to medicines and tea plantations. Most countries of the world include species of *Senecio* in their native flora, but issues of product toxification are commonly caused by invasive species from Africa. About a third of all *Senecio* are from Africa, most of which are among the southern African flora. As part of an ongoing investigation into the toxicity of southern African *Senecio*, our group has sampled over a hundred specimens from the wild and screened for toxic alkaloids. Our findings are that 5 – 10% of species sampled contain lethal quantities of retrorsine N-oxide, some exceeding 2% (g.g-1 dry weight). Unfortunately, some of these species have a similar appearance to those used in traditional medicine, which constitutes a risk to human health. Furthermore, where accidental cases of poisoning have occurred, it is possible that the toxic species we have identified were involved. With 1462 recognized species of *Senecio* (Asteraceae), the chemical diversity of the genus is exhaustive, yet largely unstudied. The dominant chemical families are cacalols (sesquiterpene lactones), flavonoids (flavans, flavones, isoflavones & flavanones), and macrocyclic pyrrolizidine alkaloids. These latter alkaloids are the cause of natural product toxification, either through adulteration or contamination in multiple settings, ranging from honey, to medicines and tea plantations. Most countries of the world include species of *Senecio* in their native flora, but issues of product toxification are commonly caused by invasive species from Africa. About a third of all *Senecio* are from Africa, most of which are among the southern African flora. As part of an ongoing investigation into the toxicity of southern African *Senecio*, our group has sampled over a hundred specimens from the wild and screened for toxic alkaloids. Our findings are that 5 – 10% of species sampled contain lethal quantities of retrorsine N-oxide, some exceeding 2% (g.g-1 dry weight). Unfortunately, some of these species have a similar appearance to those used in traditional medicine, which constitutes a risk to human health. Furthermore, where accidental cases of poisoning have occurred, it is possible that the toxic species we have identified were involved.

Keywords: Toxic; pyrrolizidine alkaloids; *Senecio*.