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IMPACT OF GEOGRAPHICAL VARIATION ON CHEMOTYPIC VARIABILITY AND BIOLOGICAL POTENTIAL OF GLORIOSA SUPERBA L. COLLECTED FROM CENTRAL INDIA AND GANGETIC PLAINS (INDIA).

Ankita Misra^{1,2}, Sharad Srivastava¹, Poonam Kushwaha² and Pawan Kumar Agrawal³

¹Pharmacognosy and Ethnopharmacology Division, CSIR-National Botanical Research Institute, Lucknow (U.P.), 226001, India

²Department of Pharmacy, Integral University, Lucknow (U.P.), 226001, India

³National Agriculture Science Fund, New Delhi, India

The present study reports the chemotypic variability of bioactive alkaloids (colchicine and gloriosine) and phenolics (quercetin and kaempferol) through calibrated HPTLC method in *G. superba* L. (tuber), collected from 17 location of Central India and Gangetic plains. The effect of phytogeography on their antioxidant and anti-inflammatory

potential was also established. Quantification data reveals that the content of colchicine (COL) and gloriosine (GLO) varies from 0.02 – 0.513% and 0.028 – 0.165% respectively. Maximum content of colchicine and gloriosine was reported in NBG-10 (Kanth, U.P) and NBG- 11 (Mohanlalganj, U.P) having 0.513 and 0.165%. Quercetin and kaempferol content varies from 0.0007 to 0.122 % and 0.005 to 0.075 %, maximum is reported in NBG-13 (Bheragha, M.P) germplasm. The investigated test extract showed promising antioxidant activity which was found in significant correlation to total phenolic and flavonoid contents. Although varied results were observed against invitro anti inflammatory activity, the best results was observed in NBG-01 (0.0038 %) whereas lowest activity was observed in NBG-78 (0.0117 %). Based on statistical evaluation on quantitative analysis of bioactive metabolites and bioactivity five germplasm were identified as elite chemotypes of *G. superba* (NBG-1, NBG-10, NBG-11 and NBG-13) in the targeted phytogeography. Furthermore our study proves significant variability in biological potential of *G. superba* extract with the change in phytogeographical content. Thus, it will aid in site specific exploration of high metabolite yielding chemotype(s) with validated pharmacological action to meet out the medicinal and commercial demands.

anku.mis@gmail.com