



## Microbial Bioload of Herbal Antihypertensives: Quantification and Strain Identification in Raw and Finished Dosage Forms

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**SUMMARY.** The production of herbal remedies is often not regulated; therefore these products often carry a large number of pathogenic microbes which may lead to toxicities. In current study herbal antihypertensives both raw and finished dosage form were subjected to standard protocols for identification and quantification (TVC) of microbial strains. The identified microbial bioload were; *Vibrio cholerae* in products P1, P7, and P20, *Proteus vulgaris* in P2, P6, P11, and P18, *Pseudomonas spp.* in P16, *Shigella spp.* in P4 and P18, *Chryseobacterium indologenes* in P5, P9, and P19, *Serratia marcescens* in P1 and P6, *Klebsiella pneumoniae* in P7 and P12, *Klebsiella oxytoca* in P4 and P8, *Serratia liquefaciens* in P9, *Enterobacter cloacae* in P10, P14, P17, P19, and P20, *Aeromonas hydrophila* in P12, and *Enterobacter aerogenes* in P13. The objectionable microbe *Escherichia coli* in raw and finished form of products P3, P8, P15, and P17 was also quantified. It is a serious safety concern to public health therefore herbalists should follow the GMP as employed by allopathics manufacturers.

**RESUMEN.** La producción de medicamentos herbarios a menudo no está regulada; por lo tanto, estos productos a menudo portan una gran cantidad de microbios patógenos que pueden conducir a toxicidades. En este estudio los antihipertensivos a base de hierbas, tanto la forma de dosificación cruda como la final, se sometieron a protocolos estándar para identificación y cuantificación (TVC) de cepas microbianas. Los componentes microbianos identificados fueron *Vibrio cholerae* en los productos P1, P7 y P20, *Proteus vulgaris* en P2, P6, P11 y P18, *Pseudomonas spp.* en P16, *Shigella spp.* en P4 y P18, *Chryseobacterium indologenes* en P5, P9 y P19, *Serratia marcescens* en P1 y P6, *Klebsiella pneumoniae* en P7 y P12, *Klebsiella oxytoca* en P4 y P8, *Serratia liquefaciens* en P9, *Enterobacter cloacae* en P10, P14, P17, P19 y P20, *Aeromonas hydrophila* en P12 y *Enterobacter aerogenes* en P13. El microbio objetable *Escherichia coli* en forma cruda y terminada de los productos P3, P8, P15 y P17 también se cuantificó. Es un grave problema de seguridad para la salud pública, por lo tanto, los herboristas deben seguir las GMP tal como lo emplean los fabricantes de medicamentos allopáticos.

**KEY WORDS:** contamination, herbal remedies, hypertension, microbes, toxicity.

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