The cumulative significance of green chemistry is now a day's accountable source for various pharmaceutical applications and has introduced a new era in drug chemistry. Orange that belongs to citrus family is used to produce silver nano-particles through an environmental friendly process in my research work. Wastes of orange the peel contains various important ingredients that can reduce silver nitrate to silver ions, the color change from yellow to dark brown confirms the formation of nano-particles activated by sunlight. These particles after formation was characterized using various analytical tools like UV-Visible, FTIR and SEM etc. These nano-particles are used for various mechanical, electrical and biological applications. The anti-microbial activity against various bacterial stains like bacillus species and E.coli proves that the green synthesized nano-particles were effective against various bacterial species and can inhibit their growth.