In vivo evaluation of the efficacy of selected plant extracts; Neem (*Azadirachta indica* A. Juss) derivatives (Neem oil, Neem cake powder and Neem leaf powder) and leaf extracts of pawpaw (*Carica papaya* L), *Tephrosia vogelii*, stinging Nettle (*Urtica massaica* L), Tobacco (*Nicotiana tabacum* L.) and commercial fungicide: Kocide DF, against bean rust was conducted. The synergistic effect of known concentrations of their combinations was also evaluated. French bean variety Army that is susceptible to bean rust (*Uromyces appendiculatus*) was used in evaluation. Results revealed significantly (P= 0.05) high inhibitory effect on rust severity, incidence and uredospores germination by nettle, tobacco and pawpaw as single treatments and combinations of nettle, Neem oil and nettle, neem oil and pawpaw. These treatments and Kocide DF also recorded significantly (P= 0.05) high pod yields and high percentages of unblemished pods, with the exception of tobacco treatments that had high phyto-toxic effects to the plant. However, Kocide DF, nettle, neem leaf powder and all combinations had significantly (P = 0.05) high effects on plant vigour. These studies propose the inclusion of nettle, pawpaw and neem oil extracts and their combinations as natural controls of bean rust and the need for bioassay – guided research to identify new and more potent compounds in these plants.