

ABSTRACT

Response of Tea (*Camellia Sinensis*) to Rainfall and Temperature Patterns in Kenya

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Tea (*Camellia sinensis* [L.]) is cultivated in diverse climatic conditions, latitudes ranging from the equator to 33° S (Natal, South Africa) and 49° N (Georgia, USA), altitude varying between sea level (Bangladesh) to 2600 MASL (Mt. Kenya). The climates in these altitudes and latitudes range from Mediterranean to hot, humid tropics of Africa and Asia. Growth and productivity of tea are influenced by air temperature, soil temperature, soil moisture and solar radiation, all other factors not limiting. Seasonal differences in rainfall and temperature exist in the tea growing areas. This study was undertaken to investigate the response of tea genotypes to rainfall and temperature patterns in the Kenya's tea growing sites. A study was conducted in three sites (Kangaita (0° 30' S, 37° 16' E, 2100 m a.s.l.), Kipkebe (0° 17' S, 35° 3' E, 1740 m a.s.l.) and Timbilil (0° 22' S, 35° 21' E, 2200 m a.s.l.) with variations in weather conditions in Kenya using a split-plot design laid in RCBD to investigate the effect of temperature and rainfall to seasonal patterns among four tea clones (AHP-SC31/37, EPK-TN14-3, TRFK-301/5 and TRFK-31/8) of scientific and commercial importance to the country. Season 1 (mid-December to March) experienced clear skies, where highest temperature values and lowest rainfall amounts were realized. In season 2 (April to August), highest amount of rainfall and lowest temperature were measured. Moderate temperature and rainfall were recorded in season 3. Two-way ANOVA ($P=0.05$) for split-plot design indicated rainfall and temperature were significantly different between seasons and locations. This study conformed to the seasonal patterns experienced in the tea growing regions of Kenya.

Keywords: Rainfall, seasonal patterns, tea (*Camellia sinensis*), temperature, variability.