Reagents and conditions:

$$5 \xrightarrow{(CF_3CO)_2O} \mathbf{A} \ (C_9H_{12}O) \xrightarrow[Me_3NO]{OsO_4 \ (cat.)} \mathbf{B} \ (C_9H_{14}O_3)$$

1) MsCl, NEt₃
2) Me₃SiCl, DMAP

$C_{13}H_{24}O_5SSi$

1) LDA   2) prenyl iodide

$\mathbf{C} \ (C_{19}H_{34}O_5SSi) \xrightarrow{t\text{-AmOK}} \mathbf{D} \ (C_{18}H_{30}O_2Si) \xrightarrow{NaNH_2}$ **6**

Grob fragmentation

$\mathbf{E} \ (C_{15}H_{23}NO) \xrightarrow[Pyridine]{TsCl} \mathbf{F} \ (C_{15}H_{21}N) \xrightarrow[2) \ H_2O]{1) \ DIBAL\text{-}H \ (1 \ equiv)} \mathbf{G} \ (C_{15}H_{22}O)$

1) DIBAL-H
2) TsCl
3) LiBHEt₃

1 α-*trans*-bergamotene

Ts = para-toluenesulfonyl; Ms = Me–SO₂–; *t*-Am = CMe₂CH₂Me; DMAP = 4-dimethylaminopyridine; DIBAL-H = Diisobutylaluminium hydride