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A rapid and efficient CsF catalyzed tandem Knoevenagel–Michael reaction

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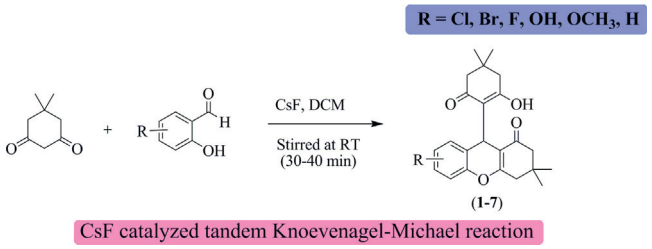
● Tandem Knoevenagel–Michael reaction. ● CsF catalyzed. ● Xanthene synthesis. ● Excellent yields.



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X-ray photoelectron spectroscopy surface analysis of fluoride stress in tea (*Camellia sinensis* (L.) O. Kuntze) leaves

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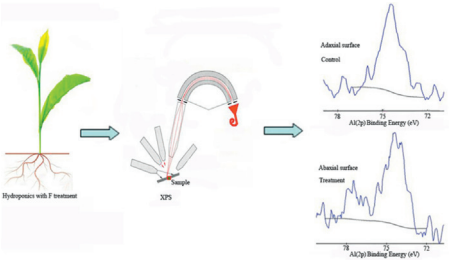
● Hydroponics and XPS were applied to study. ● Chemical form of fluoride in abaxial and adaxial surfaces was identified. ● AlF_3 and trace amounts of MgF_2 or CaF_2 existed in the adaxial surface, only MgF_2 for the abaxial surface. ● Tea leaf surface changes under F treatment were analyzed.



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Efficient synthesis of new biheterocyclic 1-(5-hydroxy-5-trifluoro-methyl-4,5-dihydropyrazol-1-yl)-3-(6-trifluoro methylpyrimidin-4-yl)-propan-1-ones

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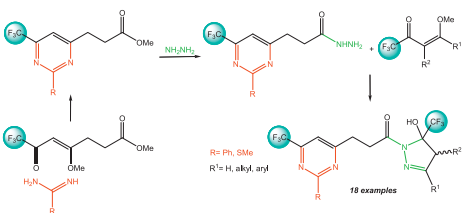
● Use of renewable precursor, levulinic acid. ● Easy diversification of products derived from the change of dinucleophiles. ● The route proposed allows to obtain systems with two trifluoromethylated heterocycles. ● The products obtained are all unpublished and with potential CNS activity.



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Polysiloxane/poly(fluorinated acrylate) core–shell latexes and surface wettability of films

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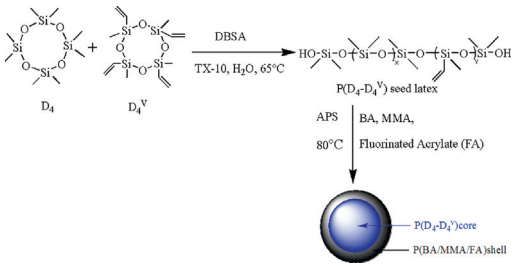

- Present a new strategy for fluorosilicone copolymers core–shell latexes.
- The effect of 6FA, 3FMA, 6FMA and 12FMA monomers on the latex is investigated.
- The longer side chains of 12FMA contribute much to the lower surface free energy.
- P(D_4/D_4^V)/p(BA/MMA/12FMA) latex gives a lower wettability and water absorption film.

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Computational screening of several silicon-based high-energy hexanitrohexaazaisowurtzitane-like derivatives

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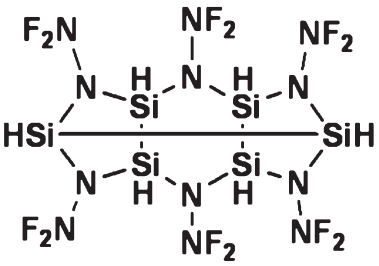

- Si-substituted cage-like CL-20 derivatives are a promising energetic material.
- The introduction of difluoramino groups will enhance the performance.
- Cage strain energies contribute both to the stability and formation enthalpies.
- Homodesmotic reactions methods efficiently calculate cage strain energies.
- Formation enthalpies of –NF_2-based derivatives can be accurately calculated.

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Combined intra-intermolecular criss-cross cycloaddition reactions leading to perfluoroalkylated fused tricyclic nitrogen heterocycles

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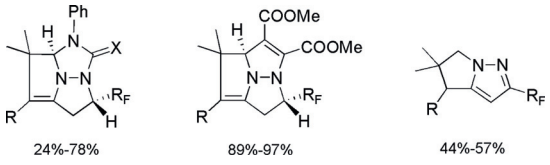

- Fused three five-membered nitrogen heterocycles were prepared.
- Combined intra-intermolecular criss-cross cycloaddition reactions were presented.
- Synthesis of new fluorinated dihydropyrrolo[1,2-*b*]pyrazoles was performed.
- Mechanisms explaining the formation of bicyclic compounds were discussed.

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Enhanced nucleophilic fluorination and radiofluorination of organosilanes appended with potassium-chelating leaving groups

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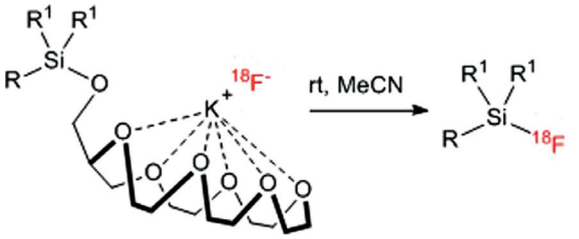

- Enhanced rates of fluorination at sterically congested silicon using simple potassium fluoride.
- New leaving groups chelate potassium cation to help stabilize charge build-up during substitution reaction.
- Method shows promising application in silicon radiofluorination with [^{18}F]fluoride.