

IMPROVING THE PROTECTIVE EFFICIENCY OF SHADE STRUCTURES

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Scattered UV radiation is present underneath shade structures due to scattering by the atmosphere and surroundings. Therefore, the side openings of a shade structure have a direct influence on where the shade is located and the level of scattered UV in the shaded area. UV exposures were assessed for the decrease in scattered UV beneath specific shade structures as a result of using two types of side-on protection, namely, polycarbonate sheeting and vegetation. Anatomical facial dosimetry measurements conducted in the shade of a scale model shade structure during summer and winter showed significant decreases in UV exposure for summer and for winter when polycarbonate sheeting was added to specific sides of the shade structure. Broadband field measurements conducted in the shade of four shade structures with various amounts of vegetation covering different sides, showed that the positioning of vegetation for side-on protection is vital for decreasing the scattered UV in the shade. Adding suitable vegetation and/or polycarbonate sheeting to specific sides of shade structures can significantly reduce scattered UV in the shade compared to shade structures that do not utilise any side-on protection. However, side-on protection is of little use if the positioning of the shade structure itself is inadequate. The positioning of the shade structure in respect to full sun activities is of key importance particularly where these activities involve infants and children.